Release in Full


51

EAST POPLAR UNIT WELL NO. 44

ROOSEVELT COUNTY, MONTANA

MURPHY CORPORATION--OPERATOR

E.P.U. = 62
KB is 24 Ft. Lower
Plan # 44

EAST POPLAR UNIT WELL NO. 44

ROOSEVELT COUNTY, MONTANA

MURPHY CORPORATION--OPERATOR

WELL HISTORY

WELL NO.:	East Poplar Unit No. 44
LOCATION:	C SW SW Section 24, Township 28 North, Range 51 East
ELEVATION:	2174' Gr. - 2186' K.B.
CONTRACTOR:	Zach Brooks Drilling Company
SPUDDED:	7:00 P.M., May 16, 1954
COMPLETED:	Temporarily abandoned October 28, 1954
TOTAL DEPTH:	5976' Schlumberger equals 5975' Driller
CASING:	9-5/8" @ 1054.48' with 400 sacks cement 5-1/2" @ 5975' with 300 sacks cement
TUBING:	2" @ 5630.66'
PERFORATIONS:	5945'-5950' 5922'-5927' 5921'-5928' 5905'-5910' 5779'-5784' 5760'-5765' 5635'-5640' 5633'-5638'
PACKER:	See Completion Data
ACID TREATMENT:	See Completion Data
INITIAL POTENTIAL:	Dry Hole
TYPE COMPLETION:	Dry Hole

FILE # 44

A.F.E. No. 54-68

AUTHORITY FOR EXPENDITURE

MURPHY CORPORATION - EAST POPLAR UNIT NO. 44

C SW SW Sec. 24, Twp. 28N., Rge. 51E., Roosevelt Co., Montana

WELL DRILLING & CONSTRUCTION EXPENSE:	TO CSG. PT.	COMP. & EQUIP.	TOTAL COST
Drilling: Footage - 5975' @ $5.75/ft.	$ 34,356	$	$ 34,356
Daywork - 7 days @ $850 and 2 days @ $800/day	5,950	1,600	7,550
Loc. survey, permit & prep.	300		300
Roads, fences, cattleguard, etc.	700		700
Mud mat. & chem., incl. oil & gas	4,500		4,500
Drilling bits, baskets, etc.		200	200
Cementing casing	2,100	1,050	3,150
Coring materials & services	1,200		1,200
Testing services, incl. swabbing	900	125	1,025
Other logs, surveys & analyses	1,500	700	2,200
Perforating services		600	600
Hydrafrac, acidize, etc. incl. oil		3,500	3,500
Float equip., centralizers, etc.	175	325	500
Trucking, welding & other labor	500	600	1,100
Supervision & Miscellaneous	800	350	1,150
Total Est. Well Drlg. & Const. Exp.	52,981	9,050	62,031
WELL EQUIPMENT COSTS:			
Casing: 120' of 13-3/8" O.D.	650		650
Casing: 6000' of 5-1/2" O.D.		10,500	10,500
Tubing: 6000' of 2-3/8" O.D.		3,700	3,700
Casinghead & connections	350		350
Xmas tree & connections		1,575	1,575
Total Est. Well Equip. Costs	1,000	15,775	16,775
Total Est. Cost of Well	53,981	24,825	78,806
LEASE EQUIPMENT:			
Flow lines		2,400	2,400
Other line pipe, valves & fittings		400	400
Trucking, welding & other labor		800	800
Total Est. Cost of Lease Equip.	--	3,600	3,600
TOTAL EST. COST OF WELL & LEASE EQUIP.	$ 53,981	$ 28,425	$ 82,406

APPORTIONMENT OF TOTAL ESTIMATED COSTS

APPROVAL OF EXPENDITURE

Production Department

Requested by _____

Date _____

Approved by _____

Date _____

Executive Department

Approved by _____

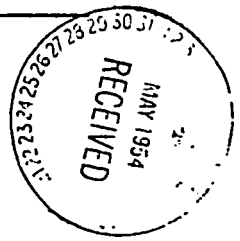
Date _____

Approved

_____

By _____

Date _____



WJT-lc
4 May 1954

Pilot 44

A.F.E. No. 55-402

AUTHORITY FOR EXPENDITURE

MURPHY CORPORATION - EAST POPLAR UNIT NO. 44 (Completion Supplement)*

C SW SW Sec. 24, Twp. 28N., Rge. 51E., Roosevelt Co., Montana

TO SET BRIDGE PLUG ON C ZONE AND COMPLETE IN THE B-2 ZONE

Workover rig, 6 days @ $650/day	$ 3,900
Rig up and rig down, 24 hours	450
Set 4 dead men for workover rig	200
Trucking to move rig in	200
Bridge plug and setting service	550.
Perforating services	600
Hydrafrac, acidize, etc., incl. oil	2,200
Mud material and chemicals	1,050
Total B-2 Completion Cost	$ 9,150

TO SQUEEZE B-2 ZONE AND COMPLETE IN THE B-1 ZONE

Workover rig, 6 days @ $650/day	$ 3,900
Mud material and chemicals	300
Cement and cementing services	1,000
Cement retainers and setting services	525
Perforating services	600
Hydrafrac, acidize, etc., incl. oil	2,200
Total B-1 Completion Cost	$ 8,525

TO SQUEEZE B-1 ZONE AND COMPLETE IN THE A ZONE

Workover rig, 6 days @ $650/day	$ 3,900
Mud materials and chemicals	300
Cement and cementing services	1,000
Cement retainers and setting services	525
Perforating services	600
Hydrafrac, acidize, etc., incl. oil	2,200
Total A-1 Zone Completion Cost	$ 8,525
TOTAL COST OF ALL 3 ZONES	$26,200

APPORTIONMENT OF TOTAL ESIMTATED COSTS

Murphy Corporation	14.675953%	3845.10
Marine Oil Company	18.772517	4394.40
Hunoco Company	2.096565	549.30
Placid Oil Company	33.545035	8788.80
The Carter Oil Company	16.335860	4280.00
Phillips Petroleum Company	16.335860	4280.00
C. F. Lundgren	.238210	Approved 62.40

APPROVED EXPENDITURE

Production Department

Requested by Gordon Kirby

Date 7-15-54

Approved by [signature]

Date 7/20/54

Executive Department

Approved by C. H. Murphy, Jr. [signature]

Date 7-21-54

BUDGET SECTION

By [signature]

Date 7-30-54

* - This A.F.E. is a supplement to A.F.E. No. 54-68 dated May 4, 1954, and covers additional expenses to set a bridging plug on the "C" Zone, perforate, acidize and test the "B-2", "B-1" and "A" Zones in that order until a well can be made.

Received 7-26-54

Posted

Yeo #44

A.F.E. No. 55-406

AUTHORITY FOR EXPENDITURE

MURPHY CORPORATION - EAST POPLAR UNIT NO. 44 (Installation of Pumping Unit)
C SW SW Sec. 24, Twp. 28N., Rge. 51E., Roosevelt County, Montana

Pumping Unit, complete w/engine	$8,200
Labor and materials, setting unit	750
Trucking, small fittings, & incidentals	150
Total Estimated Cost	$9,100

APPORTIONMENT OF TOTAL ESTIMATED COSTS

	%	
Murphy Corporation	14.675953	1,335
Marine Oil Company	16.772817	1,526
Hunoco Company	2.096568	191
Placid Oil Company	33.545035	3,053
Carter Oil Company	16.335860	1,487
Phillips Petroleum Company	16.335860	1,487
C. F. Lundgren	.238210	21

APPROVAL OF EXPENDITURE

Production Department

Requested by Gordon Kirby

Date 8-3-54

Approved by [signature]

Date 8/5/54

Executive Department

Approved by _____

Date _____

Approved

BUDGET SECTION

By [signature]

Date 8/9/54

HM:emg
8-3-54

A.F.E. #57-4-56 (Supplement)

AUTHORITY FOR EXPENDITURE
EAST POPLAR UNIT WELL #44 (WORKOVER)
SW SW Section 24-T28N-R51E, Roosevelt County, Montana

Rig expense, 6 days (10 hours)	$ 1,650
Perforating services	1,500
Cement and services	1,000
Squeeze tool, packers, and service	1,200
Trucking, labor, supervision, and misc.	1,000
TOTAL ESTIMATED COST	$ 6,350

~~A.F.E. #57-4-56 is to~~ squeeze the "A" Zone and block squeeze below and above the Kibbey Sand, then test the Kibbey Sand. This supplement is to test the show found in the samples of the Heath from 5017' to 5036'. The zone will be block squeezed above and below before testing.

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Corporation	31.448470%	$ 1,997
Munoco Company	2.096565%	133
Placid Oil Company	33.545035%	2,130
The Carter Oil Company	16.335860%	1,037
Phillips Petroleum Company	16.335860%	1,037
C. F. Lundgren	.238210%	15

APPROVAL OF EXPENDITURE

Requested by:

Harold Mida — FEB 27 1957
Division Production Supt. — Date

Recommend Approval:

Gordon Kirby — APR 12 1957
Division Manager — Date

Recommend Approval:

Staff Production Man — Date

Recommend Approval:

Budget Supervisor — Date

Approved:

Vice President-Operations — Date

9000
12,350
3,350

HM:eg
2-27-57

File # 44

A.F.E. No. 56-4-54

AUTHORITY FOR EXPENDITURE
EAST POPLAR UNIT WELL #44 (Workover)
SW SW Section 24-T2°N-R51E, Roosevelt County, Montana

Moving in workover rig	$ 400
Rig time, 10 twenty-four hour days @ $648.00	6,480
Squeeze tools, packer, and service	1,560
Cement and service	1,850
Perforating and logging service	1,258
Trucking and miscellaneous labor	800
TOTAL ESTIMATED COST	$12,348

APPORTIONMENT OF TOTAL ESTIMATED COST

	%	
Murphy Corporation - Unit Operator	31.448470	$ 3,883
Munoco Company	2.096565	259
Placid Oil Company	33.545035	4,142
The Carter Oil Company	16.335860	2,017
Phillips Petroleum Company	16.335860	2,017
C. F. Lundgren	.238210	29

APPROVAL OF EXPENDITURE

Requested by:

Division Production Supt. MAR 22 1956 Date

Recommend Approval:

Staff Production Engineer Date

Recommend Approval:

Division Manager MAR 22 1956 Date

Recommend Approval:

Budget Supervisor Date

Approved:

By Date

Approved:

Vice President-Operations Date

HM:eg
3-22-56

File # 44

AUTHORITY FOR ABANDONMENT
MURPHY CORPORATION - EAST POPLAR UNIT NO. 44
Roosevelt County, Montana
East Poplar Unit

Authority is requested to plug and abandon the above named well located as described below:

C SW SW Section 24-T28N-R51E.

JUSTIFICATION:

Completed as a dry hole and temporarily abandoned October 28, 1954. Total depth was 5976' which was 55' below the top of the "C" Zone crystalline porosity. 5-1/2" casing was set at 5975' with 300 sacks of cement. The well was tested as follows:

"C" Zone, 5945'-5950', flowed salt water, 5-10% oil,
"C" Zone, 5922'-5927', flowed salt water, 2-5% oil,
"C" Zone, 5921'-5928', flowed salt water, 2-5% oil,
"C" Zone, 5905'-5910', flowed salt water, 10% oil,
"B-2" Zone, 5779'-5784', swabbed salt water w/trace oil,
"B-1" Zone, 5760'-5765', swabbed salt water w/trace oil,
"A" Zone, 5635'-5640', flowed salt water w/trace oil,
"A" Zone, 5633'-5638', flowed salt water w/trace oil.

Oil stains were found in the samples of the Heath Sandstone and Kibbey Sandstone. On June 1, 1957, completion attempts were made in these zones with results as follows:

Kibbey 5291' swabbed 2 BFPH (S.W. w/ trace oil)
Kibbey, 5282'-5287', swabbed salt water w/trace oil,
Heath, 4994'-5000', swabbed dry,
Heath, 5016'-5021', pumped 7 BOPD & 22 BWPD.
Heath 5026 & 5027' Swabbed 30 BFPH, 95% wat.

The Heath zone had good oil shows that were soon exhausted. A sand-frac job failed to stimulate production.

OTHER FACTORS:

The reservoir water drive is believed to be sufficient in this area. No secondary recovery program anticipated.

ESTIMATES:

Cost of plugging hole and pulling casing is estimated as follows:

	Plugging	$ 450.00
	Pulling casing 3000' @ 30¢	900.00
	Total	$1,350.00
Salvage—		
	3000' of 5-1/2" (75% of new price)	$4,350.00
	Casing head & Xmas tree (75% of new price)	1,200.00
	Total	$5,550.00

WORKING INTEREST OWNERS:

		Cost	Salvage
Murphy Corporation	31.448470	$ 425	$ 1745
Munoco Company	2.096565	28	116
Placid Oil Company	33.545035	453	1862
The Carter Oil Company	16.335860	221	907
Phillips Petroleum Company	16.335860	221	907
C. F. Lundgren	.238210	3	13

APPROVAL OF ABANDONMENT

Requested by:

Division Production Superintendent — DEC 18 1957 Date

Recommend Approval:

Div. Land — Div. Geol. — Div. Engr.

Division Manager — FEB 12 1958 Date

RECOMMEND APPROVAL:

Staff Geologist — Land Manager — Engineering — Staff Production

Vice President--Operations — Date

Permit Applications

2P
57→8

Form 9-331 b
(April 1952)

Budget Bureau No. 42-R-359.2.
Approval expires 12-31-55.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Fort Peck

Allottee Kirn

Lease No. 1-37-Ind-12875

Ref. 29

RECEIVED
JUN 19 1957
U.S. GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			
Notice of Intention to Workover	X		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

June 17, 1957

Well No. 44 is located 660 ft. from {N/S} line and 660 ft. from {E/W} line of sec. 24

C SW SW Section 24 (¼ Sec. and Sec. No.) 28N (Twp.) 51E (Range) M.P.M. (Meridian)

East Poplar (Field) Roosevelt (County or Subdivision) Montana (State or Territory)

The elevation of the derrick floor above sea level is 2186 ft. K.B.

COPY RETAINED DISTRICT OFFICE

DETAILS OF WORK OVER PLAN

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Cement squeeze the A Zone perforations 5633'-5638' through DC cement retainer, (A Zone producing 100% water). Block squeeze below and above Kibbey Sandstone and test interval from 5282'-5287'. If commercial production is not obtained, cement squeeze and test show found in samples of the Heath from 5017'-5036'. The Heath will be block squeezed above and below before testing.

U.S. GEOLOGICAL SURVEY
RECEIVED
JUN 24 1957
CASPER, WYOMING

Approved JUN 21 1957

District Engineer

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company MURPHY CORPORATION

Address P. O. Box 447

Poplar, Montana

By M. L. James

Title Field Production Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16—84376-7

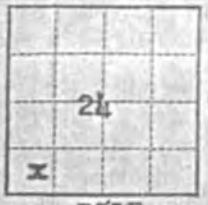
Form 9-331 b
(April 1952)

(SUBMIT IN TRIPLICATE)

Approval expires 12-31-60.

Indian Agency Ft. Peck

R-28



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allottee 1-37-Ind-12875

Lease No.

U. S. GEOLOGICAL SURVEY
RECEIVED
OCT 15 1958
BILLINGS, MONTANA

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	XX
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

October 13, 1958

Well No. 44 is located 660 ft. from ~~N~~ (S) line and 660 ft. from ~~E~~ (W) line of sec. 24

C SW SW Section 24 (¼ Sec. and Sec. No.) 28N (Twp.) 51E (Range) M.P.M. (Meridian)

East Poplar (Field) Roosevelt (County or Subdivision) Montana (State or Territory)

The elevation of the derrick floor above sea level is 2186 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Set 50 sack plug from 4986'-4574'. Cut and pulled 3534' of 5-1/2" casing and set 25 sack plug in bottom of 9-5/8" casing and 10 sack plug in top of 9-5/8" casing with 4" x 6' well marker cemented in, in accordance with the United States Geological Survey Regulations and the Montana Oil & Gas Conservation Commission Regulations

U. S. GEOLOGICAL SURVEY
RECEIVED
NOV 30 1959
CASPER, WYOMING

COPY RETAINED DISTRICT OFFICE

Approved NOV 23 1959

Hilary A. Oolen
ACTING District Engineer

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Murphy Corporation

Address P. O. Box 547

Poplar, Montana

By M H Comer

Title Field Production Supt.

U. S. GOVERNMENT PRINTING OFFICE 16—64871-8

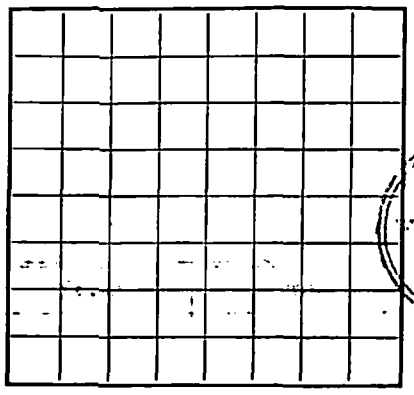
23P

Form 9-330

COPY RETAINED DISTRICT OFFICE

Budget Bureau No.
Approval expires 1'

U. S. LAND
SECTION
LEASE



LOCATE WELL CORRECTLY

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

Company MURPHY CORPORATION Address B-13 Behner Building, Billings, Montana

Lessor or Tract E.P.U. (Firn) 1-37-Ind-12875) Field East Poplar State Montana

Well No. 44 Sec. 24 T. 28N R. 51E Meridian M.P.M. County Roosevelt

Location 660 ft. {N.} of S. Line and 660 ft. {E.} of W Line of Section 24 Elevation 2186'K.B.
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed Harold Milam
Harold Milam

Date January 20, 1955 Title District Production Superintenden

The summary on this page is for the condition of the well at above date.

Commenced drilling May 16, 1954 Date Suspended October 28, 1954

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from ____ to ____ No. 4, from ____ to ____

No. 2, from ____ to ____ No. 5, from ____ to ____

No. 3, from ____ to ____ No. 6, from ____ to ____

IMPORTANT WATER SANDS

No. 1, from ____ to ____ No. 3, from ____ to ____

No. 2, from ____ to ____ No. 4, from ____ to ____

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated From—	Perforated To—	Purpose
9-5/8"	36#	8	American	1041.58'	Howco				Surface
5-1/2"	15.50#	8	American	5962.30'	Howco		5845	5850	
							5902	5907	
							5921	5928	
							5905	5910	
							5779	5784	
							5760	5765	
							5635	5640	
							5633	5638	

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
9-5/8"	1054.58'	400	Pump & Plug		
5-1/2"	5975'	300	Pump & Plug		

PLUGS AND ADAPTERS

Heaving plug—Material ____ Length ____ Depth set ____

FOLD | MARK

COMPLETION DATA

CASING: Ran 25 jts. 1041.50' of 9-5/8", R-3, J-55, 36#, 8rd thd. American casing. Landed 13' below RKB and set at 1054.58'. Cemented with 400 sacks regular bulk cement with 2 percent CaCl2. Plug down at 1:20 P.M., 8-18-54. Bumped plug with 1000#, released pressure, float did not hold. Left 500# on casing. One Howco centralizer at 1035'. Circulated approximately 50 sacks cement.

Ran 185 jts. 5962.30' of 5-1/2", 15.50#, 8rd thd, ST&C, R-1 & R-2 American casing. Landed 11.70' below RKB. Howco fill-up float shoe at 5975'. Howco baffel collar at 5941.75' with 150' Howco scratchers at 5630 to 5680; 5753 to 5778; 5780 to 5810; 5916 to 5960 and 5963 to 5973. Five Howco centralizers at 5610, 5735, 5778, 5835 and 5961. Cemented with 300 sacks Pozmix with 2 percent gel. Pipe rotated freely throughout cementing. Bumped with 1000#, released pressure, held ok. Plug down at 7:38 P.M., 8-10-54.

COMPLETION: Picked up tubing and drilled float collar and cement to 5964'; tested casing and blow-out preventers to 1000#. Perforated with Lane Wells jets, 5945 to 5950 with 4 shots per foot. Checked collars exactly as Drillers Measurements and total depth at 5964 (same as Drillers). Went in hole with Lane Wells BOC packer and Guiberson hold-down and one joint of tail pipe. Set packer at 5899 with 8000# weight and tail pipe to 5939. Well began flowing small stream. Flowed for two hours while rigging up to swab. Swabbed 14 hours. Fluid slightly gassy with trace of oil at first. Gradually increased to 10 percent oil and more gas. Fluid level at approximately 3000'.

Swabbed three hours, fluid at 3000', 5 to 10 percent oil. Released packer and reversed out. Pulled tubing and ran Baker Model "K" C.I. retainer. Set retainer at 5937. Broke formation with 3000#. Mixed 50 sacks Slo-Set. Pressure varied from 100# to 3000# when cement started in formation due to perforations trying to plug. Normal injection pressure 800#. Staged 3 times to raise pressure to 1400#. Injected 45 sacks, reversed out 5 sacks. Job complete at 8:05 P.M. Rigged up Lane Wells. Perforated 5922 to 5927 with 4 jet shots per foot.

Displaced mud with water and acidized with 1000 gallons of etching acid. Broke formation with 1400#. Injected 2 B.P.M. at 1000#. Bled down to 700# after shutting pumps down. Open to pits at 8:45 A.M. Acid to surface in 11 minutes. Formation fluid in 6 more minutes. Flowed 50 percent oil and mud and 50 percent salt water. Changed flow over to casing side and unloaded 110 barrels displacement water in 28 minutes. Changed back to tubing and flowed 1/4" choke with 750# TFP.

Ran Baker Model "K" magnesium retainer and set at 5913'. Formation broke with 1400#. Mixed 100 sacks Slo-set, injected cement on vacuum at first and 1000# final. Cleared perforations with 4 barrels water. Job complete at 7:15 A.M., 6-15-54.

Broke formation with 1400#. Mixed 50 sacks Slo-set, injected cement in formation with zero pressure at first. Pressure built to 4800# after two, ten minute stages. Pressure held. Reversed out 5 sacks. Job complete at 3:05 P.M., 6-15-54.

Drilled out retainers and ran Halliburton test tool. Tool open at 1:15 P.M. with fair blow decreasing to weak blow after 2 hours. Started swabbing at 7:00 P.M. Fluid level at 500'. Swabbed 14 hours. Fluid level constant at 4500' with 10 to 15 percent oil. Pulled test tool, D.S.T. pressures were IHHFP-180#, FHHFP-2485#, Hydro-3050#. No HHSIP-clock stopped. Baker Model "K" magnesium retainer prematurely set at 5380'. Drilled out retainer and set Baker Model "K" magnesium retainer at 5910'. Broke formation with 2200#, pumped water into formation with 1200#. Squeezed with 50 sacks of Slo-set cement. Maximum pressure 1800#. Cleared perforations with water.

Squeezed with 50 sacks of Slo-set cement. Broke formation with 2600#. Pumped cement into formation with 1300#. Cleared perforations. Pressure zero at end of job. Waited 12 hours; squeezed with 50 sacks Slo-set. Broke formation with 2200#. Pumped cement in with 1600 to 1700#. Cleared perforations with 2100#. Bled down to zero pounds at end of job. Waited 6 hours and re-squeezed with 50 sacks of cement. Broke formation with 3000#. Pumped cement in with 1300 to 2300#. Cleared perforations. Pressure at end of job 350#. Slowly bled to zero pounds. Job complete 5:30 A.M., 6-19-54.

Squeezed perforations at 5922-5927 with 50 sacks Slo-set cement. Broke formation with 2100#. Injected cement at 1800 to 2400#. Pressure dropped to zero at end of job. Waited 6 hours; squeezed with 50 sacks Slo-set cement. Broke formation with 2000#. Injected cement at 1600 to 2400#. Pressure bled to zero at end of job. Waited 8 hours and squeezed with 50 sacks Slo-set cement. Broke formation with 2400#. Injected cement at 1600 to 2000#. Pressure zero at end of job. Job complete at 5:00 A.M., 6-20-54.

Squeezed perforations at 5922-5927 again with 50 sacks Slo-set cement. Broke formation with 2600#. Injected cement at 1600 to 3200#. Pressure bled to zero pounds. Waited 5 hours; mixed 50 sacks of Slo-set; broke formation with 2200#. Started injecting cement at 1400#; gradually building to 4800#. Pressure did not bleed off. Reversed 20 sacks of cement. Drilled retainer.

Ran D.S.T. #5, hook-wall packer at 5895' with tail pipe at 5911'. Tool open 4 hours. Tool opened with very weak blow and died in 15 minutes. Well dead the remainder of the test. Recovered 45' of drilling mud. Hydro-3355#; IBHFP-10#; FBHFP-10#; 20 minute BHSIP-10#. Perforated with 28 bullets and 22 jet shots from 5921' to 5928' with Lane Wells. Swabbed displacement water. Fluid level at 1000'.

Acidized with 500 gallons Dowell regular acid. Soaked formation with 3100# for 44 minutes. Maximum injection pressure 2500# with 0.5 barrels per minute. Final injection pressure 1300# with 0.5 barrels per minute. Pressure bled to 1000# at end of job. Acid water to surface in 42 minutes, first trace of oil in 7 more minutes. Flowed open flow to pits at the rate of 250 barrels of fluid per day with 10 to 15% oil.

Flowed 9 hours, started at rate of 250 barrels of fluid per day with 15% oil and decreasing to 2 to 5% oil. Killed well with mud and set Baker model "K" cast iron retainer at 5917'. Mixed 50 sacks cement. Broke formation at 2200#. Injected cement with 0# to 1000#. Cleared perforations with 4 barrels of water. Retainer moved up the hole 30 inches while squeezing.

Waited 8 hours on first squeeze job and mixed 50 sacks of Slo-set cement. Broke formation with 2600#. Started cement into formation with zero pressure building to 3600# and breaking back twice. Second time there was 25 sacks of cement left. Gradually building to 5000# with next 5 sacks of cement. Pressure held. Reversed 20 sacks of cement. Shot with Lane Wells jets, 5905' to 5910' with 5 shots per foot. Top of retainer at 5910'. Displaced mud with water.

Acidized with 1000 gallons of etching acid. Soaked formation with 2600# for 13 minutes. Broke to 2200#. Injected acid at 2.9 barrels per minute with 2000#. Well would not flow. Swabbed acid back and swabbed displacement water with trace of oil. Swabbed well dry.

Acidized with 1000 gallons of gel acid followed with 2000 gallons of etching acid. Maximum injection pressure 2800# at 4.3 barrels per minute. Final injection pressure 1600# at 3.5 barrels per minute. Bled down to 500#. Flowed approximately 700 barrels of fluid per day on 14/64" choke with average of 25% oil. Rig released at 9:00 P.M., 6-27-54. Moved in working rig.

Flowed on 14/64" choke 57 barrels of oil and 323 barrels of water in 20 hours with 420# TP.

Flowed at the rate of 78.25 barrels of oil and 446.25 barrels of water in 24 hours with 450#TFP, CP-750#, on a 14/64" choke.

Flowed 39 barrels of oil and 741 barrels of water in 24 hours through a 14/64" choke with 450# TFP.

Flowed 55.20 barrels of oil and 1049 barrels of water on a 16/64" choke with 375# TFP.

Flowed 28.76 barrels of oil and 2847.7 barrels of water in 24 hours through a 32/64" choke with 200# TFP.

Pulled tubing to set bridge plug and perforate 3rd porosity. Displaced mud in casing with water. Pulled tubing, ran Baker Model "N" C.I. bridge plug on W. L., set at 5890'. One sack cement on top plug. Perforated 3rd porosity 5779' to 5784' with 5 bullets per foot. Ran tubing with Lane-Wells packer. Displaced mud in tubing with fresh water. Set packer, started swabbing, swabbed down 3000'. Packer failed. Swabbed well dry. Had a trace of oil. Filled hole with fresh water.

Acidized with 1000 gallons etching acid. Maximum pressure 3000# at 1.8 barrels per minute. Pressure bled down at 1100#. Well flowed back displacement water for 45 minutes and began to die. Started swabbing. Acid water and gas to surface in 15 minutes of swabbing. Swabbed 5 hours with fluid level at 3500'. Salt water with trace of oil. Lost swab in hole, recovered swab and swabbed 12 hours. Swabbed salt water, 15 to 18 barrels per hour, with a trace of oil, no gas, with fluid level at 3200'. Weight of salt water 9.1#.

Killed well with salt water and set a Baker Model "K" C. I. cement retainer at 5770' on tubing. Broke formation with 1600#. Mixed 75 sacks of Slo-set cement. Started cement into formation with 1400#. Pressure built to 5400# with 30 sacks of cement into formation. Pressure held ok. Reversed out 45 sacks of cement. Job complete at 1:20 A.M., 7-16-54.

Perforated 2nd porosity 5760' to 5765' with 5 bullets per foot; ran tubing with Lane-Wells packer. Packer failed second trip with swab. Acidized 2nd porosity 5760' to 5765' with 1000 gallons Dowell etching acid. Soaked 3 hours and 20 minutes with 3500#. Started taking acid 1/4 barrel per minute, 3200 maximum injection rate 9/10 barrel per minute. 3200# bled down to 2600#. Open to pit. Flowed displacement water 40 minutes. Swabbed 10 hours, fluid level 3500'. Recovered 20 barrels salt water with trace of oil.

Swabbed 19 barrels of salt water with 1/10 of 1 per cent from the 2nd porosity. Acidized with 1000 gallons gel acid followed by 2000 gallons etching acid. Maximum injection rate 4.7 barrels per minute at 3100#. Bleed down pressure 2000#. Acid water and gas to surface in 8 minutes Salt water with trace of oil in 28 minutes more. Well dead in 18 more minutes. Swabbed 15 hours at rate of 33 BFPH, salt water with trace of oil.

Ran Baker Model "K" cast iron retainer to squeeze 2nd porosity, set at 5278'. Drilled out. Ran Baker junk basket on swab line.

Set Baker "K" cast iron cement retainer at 5738' on tubing. Broke formation with 1200#, mixed 75SA Slo-set cement. Started cement in formation at 1000#. Built up to 5000#, reversed out 20 sacks, left 1054 on top of plug. Perforated 5-1/2" casing with Lane-Wells, 5635'-5640' (1st porosity) with 4 cone shots per foot. Shot from collar log. Ran 180 jts. 2" tubing 5610.64, landed tubing at old RKB 10.22, 1 jt. 2" tubing 31.40, one 6' sub 6.00, 179 jts. tubing 5579.24, 3.80 perf. 3.80. Tubing set at 5630.66'. Well swabbed down to 5000' at 5:00 A.M. Let set for 1 hour, fluid rose 35'. Fluid-9# salty water with trace of oil.

Swabbed down fluid level 5500'. Let set 4 hours. No increase in fluid level. Recovered 1/4 to 1/2 barrel salt water per hour with trace of oil. Circulated with salt water approximately 1-1/2 barrels oil in casing annulus. Acidized 1st porosity 5635'-5640', with 210 gallons Dowell etching acid. Maximum pressure 3500#. 3 hours soaking to displace acid, 6 to 10 minutes for 300# pressure drop with pump stopped. Bleed down pressure 3200#. Open to pit at 8:24 P.M., 7-22-54. Flowed small stream displacement water, 4 minutes, died, swabbed down. Fluid level to 5500. Swabbed 1/2 to 1 barrel fluid per hour with trace of oil. Circulated with salt water. Approximately 2 barrels oil in casing annulus. Reacidized 1st porosity with 375 gallons Dowell etching acid. Maximum pressure 2200#. Formation broke back to 1600#. Displaced 147 gallons in formation. Bleed down pressure 1000#. Open to pit 7:50 A.M. Flowed displacement water and 228 gallons fresh acid - 35 minutes. Spent acid, 48 minutes. Flowed for 4 hours 10 minutes. Approximately 20 BFPH with slight trace of oil.

Flowed 24 hours. Flowed 46 barrels salt water per hour with trace oil, 100# CP, 0# TP. 1/2" choke, 33 barrels salt water per hour with trace oil, 200# CP, 0# TP.

Killed well with 10.2 mud. Ran Baker Model "K" cast iron cement retainer, set at 5620'. Squeeze #1, 1st porosity, 5638'-5640' with 75 sacks Slo-set cement. Mixed with salt water. Maximum pressure 3900#. Would not squeeze. Cleared tool with 4 barrels water.

Squeeze #2 on 1st porosity through perforations, 5635'-5640'. Broke formation with 4600#. Mixed 50 sacks of Slo-set cement. Maximum pumping pressure, 4800#. Would not squeeze. Pressure dropped to 3400# at end of job. Cleared tool with 6 barrels of water. Job complete at 4:00 P.M., 7-24-54. Waited 11 hours. Squeeze #3, broke formation with 4500#. Mixed 50 sacks of Slo-set cement. Injected 15 sacks of cement in formation. Pressure built to 5500# and held. Reversed out 35 sacks of cement. Job complete at 3:35 A.M., 7-25-54.

Drilled out Baker "K" cast iron retainer, set at 5618'. Washed down to 5689'.

Ran test with Halliburton well packer and set at 5615' to test perforation in 5-1/2" casing, 5635'-5640'. Recovered 365' salty sulphur water, no blow. IHMP--3162#, IFP--26#, FFP--112#. Ran Lane Wells Gamma Ray-Neutron log, 5892'-5400'. Log 2' higher than Schlumberger. Perforated 1st porosity, 5633' to 5638' with 4 cone shots per foot. Ran 181 jts. 2" tubing (5641.84), 1 perf. jt. 3.80, below old RKB 10.22, bottom of tubing 5655.86'. Displaced mud with salt water.

Acidized 1st porosity with 500 gallons Dowell etching acid. Soaked 15 minutes on 3200#. Injected 3.5 barrels in 35 minutes at 3200#. Pressure broke back to 2700#. Stopped injection as soon as formation broke. Turned well to pit. Flowed 7 minutes and died. Swabbed well 11 hours to pit beginning 1 per cent oil, increasing to 10 per cent oil. Swabbed in tank 9 hours, 35 barrels of oil and 35 barrels of water. Fluid level at 4500#.

Swabbed 8 hours at a rate of 200 BFPD with 65% oil. Released rig at 4:00 P.M., 7-28-54.

Started production tests. Flowed into test tank. TSIP--350#, CSIP-800#.

Flowed 3-1/2 barrels per hour, no water. Slow rate of flow is not removing water accumulated. 26 hours, 27-1/2 barrels oil, no water pressure 650#. Displaced water with oil, flowed 97 barrels in 24 hours, no water.

Tested. Pumped 114 barrels fluid 16 hours. BS&W 35 percent water. Pumped. 24 hours, 65 barrels fluid 97 percent water.
Pumped 24.85 barrels of oil and 45.95 barrels of water in 24 hours.
Pumped (6 day test) average 7 barrels oil per day and 50 barrels per day. Test was determined by making water draw. Loaded hole with oil. Acidized 1st porosity 5633' to 5638' with 500 gallons Dowell etching acid. Maximum pressure 2200#. Injected 1.5 barrels per minute at 2200#, no break, bled down pressure 800#. Flowed spent acid 25 minutes, salt water 70 minutes, 1 hour test 1/4" choke 8.12 barrels, 100 percent salt water. TFP-125#; CFP--875#; 100 percent salt water. TFP--200#. Flowed on 1/8" choke 135 barrels salt water chloride 107,000 PPM, TFP--200#. Shut-in. Test tank full salt water. Flowed in pit, 100 percent salt water.

Temporarily abandoned 10-26-54.

ELECTRO LOG DATA

TYPE OF LOG	INTERVAL LOGGED
Schlumberger Electrical Survey 2"	80' - 5975'
Schlumberger Electrical Survey 5"	4000' - 5975'
Schlumberger Microlog 5"	4000' - 5972'
Schlumberger Microlog 25"	5450' - 5972'
Lane Wells Gamma Ray	5400' - 5681'
Lane Wells Neutron	5400' - 5680'

LOG TOPS

Judith River	343	(+1345)
Eagle	1222	(+ 964)
Niobrara	2082	(+ 104)
Greenhorn	2436	(- 250)
Graneros	2649	(- 463)
Muddy	3017	(- 831)
Dakota Silt	3237	(-1051)
Morrison	3593	(-1407)
Swift	3678	(-1492)
Rierdon	4008	(-1822)
Piper Shale	4370	(-2184)
Piper Lime	4447	(-2261)
Gypsum Springs	4507	(-2321)
Spearfish	4708	(-2522)
Amsden	4811	(-2625)
Heath	4938	(-2752)
Otter	5113	(-2927)
Kibbey	5250	(-3064)
Kibbey Limestone	5413	(-3227)
Madison	5508	(-3322)
"A" Zone	5635	(-3449)
"A-B" Salt Zone	5716	to 5720
"B-1" Zone	5760	(-3574)
"B-2" Zone	5777	(-3591)
"C-2" Intercrystalline	5922	(-3736)
"C-3" Zone	5945	(-3759)

Subtract 24 ft. to get spud to tops

DRILL STEM TESTS

D.S.T. #1--5632'-5650'. 1/4" choke, open 4 hours; good blow decreasing to medium blow after 2 hours. Recovered 2686' fluid; 1460' gas, 1126' clean oil, 30' salty oil-and-gas-cut mud, 70' salt water. IBHFP--65#; FBHFP--425#; 20 minute BHSIP--2882#, Hydro--3560#.

D.S.T. #2--5774'-5792'. 1/4" choke, open 4 hours, opened with very weak blow increasing slightly after 30 minutes. Recovered 2229' salt water with trace of free oil on top. IBHFP--0#; FBHFP--1028#; BHSIP--2675#; Hydro--3200#.

D.S.T. #3--5757'-5773'. Tool open 4 hours, opened with weak blow increasing slightly after 1 hour. Recovered 310' fluid, trace of free oil on top, 30' oil-and-gas-cut mud, 280' muddy salt water. IBHFP--0#; FBHFP--135#; BHSIP--2286#; Hydro--3200#.

D.S.T. #4--Tool open at 1:15 P.M. Fair blow decreasing to weak blow after 2 hours. Started swabbing at 7:00 P.M. Found fluid level at 5000'. Swabbed 14 hours. Fluid level constant at 4500' with 10 to 15 per cent oil. IBHFP--80#; FBHFP--2485#; Hydro--3050#. No shut-in pressure, clock stopped.

D.S.T. #5--(Dry Test) Hook wall packer at 5895' with tail pipe at 5911'. Tool open 4 hours. Open with very weak blow and died in 15 minutes. Well dead remainder of test. Recovered 45' drilling mud. IBHFP--10#; FBHFP--10#; 20 minute BHSIP--10#; Hydro--3385#.

CORE ANALYSIS REPORTS

Company HURPHY CORPORATION Date 6-11-54 Lab No. 282 Well No. Unit #44 Location C SW SW 24-28N-51E

Formation "A", "B-1" & "B-2" Zones Field East Poplar County Roosevelt State Montana Depths 5609-5784

Sample No.	Representative of Feet	Midpoint of Sample	Permeability Radial	Permeability Vertical	Effective Porosity Percent	Density Bulk	Density Matrix	Saturation % of Pore Space Resid. Oil.	Saturation % of Pore Space Water
	Core #2	5609-5650	Rec. 41'						
1	5636-37		19.	27.	5.4	2.55	2.69	0.0	4.1
2	37-38		98.	24.	5.1	2.54	2.68	11.0	31.6
3	38-39		0.98	65.	5.4	2.54	2.69	8.5	34.6
4	39-40		24.	13.	3.1	2.60	2.68	Tr.	25.0
5	40-41		1.7	0.93	0.7	2.65	2.67	44.7	51.2
6	41-42		F.T.	1.5	1.5	2.66	2.68	6.0	40.0
7	42-43		23.	1.4	1.6	2.64	2.68	0.0	10.6
	Core #3	5760-5792	Rec. 32'						
NS	5760-61.5								
8	61.5-62.5	"B-1" Zone	0.79	1.7	0.9	2.59	2.62	8.2	84.4
9	62.5-63.5		0.75	1.6	0.9	2.43	2.66	1.0	26.2
10	63.5-64.5		0.34	0.25	4.0	2.56	2.67	Tr.	18.8
11	64.5-65.5		677.	1.3	3.0	2.62	2.70	0.0	13.3
12	65.5-66.5		1.9	0.99	0.7	2.43	2.69	4.7	25.8
13	66.5-68		1.7	1.4	0.8	2.44	2.70	11.3	43.6
14	68-69		2.0	1.1	0.6	2.46	2.70	3.1	51.2
15	69-70		0.97	1.5	11.4	2.40	2.71	6.8	40.5
NS	70-77								
16	77-78	"B-2" Zone	2.5	0.75	2.8	2.68	2.76	13.2	84.9
17	78-79		3.6	2.2	11.5	2.39	2.70	3.4	28.0
18	79-80		49.	15.	11.8	2.36	2.68	23.1	61.0
19	80-81		3.0	2.5	13.5	2.30	2.66	11.4	51.6
20	81-82		1.1	1.3	10.7	2.43	2.72	7.0	27.3
21	82-83		557.	5.5	9.8	2.42	2.70	14.9	26.0
22	83-84		2.2	6.0	5.3	2.62	2.76	7.7	45.5

CORE ANALYSIS REPORTS CONTINUED

Formation "B-2" Zone Depths 5784 - 5792 Date 6-11-54

Sample No.	Representative of Feet	Midpoint of Sample	Permeability		Effective Porosity Percent	Density		Saturation % of Pore Space	
			Radial	Vertical		Bulk	Matrix	Resid. Oil	Water
	Core #3								
23	5784-85		0.97	0.65	7.1	2.52	2.71	4.1	34.4
24	85-86		6.7	0.81	6.5	2.58	2.76	1.4	72.3
25	86-87		1.4	0.71	8.8	2.47	2.71	5.6	57.2
26	87-88		3.4	2.4	9.1	2.45	2.70	4.1	29.7
27	88-89		90.	0.40	9.4	2.44	2.70	2.0	46.6
28	89-90		1.5	1.6	12.2	2.37	2.70	6.6	53.7
29	90-91		418.	1.1	12.9	2.36	2.70	5.0	46.7
30	91-92		0.57	0.44	11.6	2.38	2.70	5.9	68.4

CORE ANALYSIS REPORTS CONTINUED

Formation "C-2" Zone Depths 5892-5932 Date 6-11-54

Sample No.	Depth Feet	Effective Porosity % Porespace	Permeability Millidarcies Horizontal	Permeability Millidarcies Vertical	Saturations % Pore Space Resid. Oil	Saturations % Pore Space Total Water
	Core #4	5892-5944	Recovered 54'			
31	5920-21	6.1	0.08		15.9	45.9
32	21-22	10.1	0.11		30.4	42.5
33	22-23	10.6	0.14		21.6	36.9
34	23-24	16.8	0.23		25.7	44.0
35	24-25	15.2	0.16		19.9	49.1
36	25-26	11.9	0.10		17.2	43.5
37	26-27	11.9	0.20		20.6	36.6
38	27-28	11.4	0.19		25.6	43.9
39	28-29	15.7	0.35		29.6	35.2
40	29-30	15.2	0.38		32.5	34.1
41	30-31	9.2	0.41		39.1	57.6
NS	31-32					

CORE DESCRIPTIONS

Core No. 1 5580 - 5609, recovered 29'

8'0"	Limestone and anhydrite; thinly interlaminated; limestone; dark gray, microcrystalline. Anhydrite; light gray, brecciated. No show.
2'0"	Limestone; dark gray, amorphous, very argillaceous. No show.
8'0"	Anhydrite; medium gray, dense; upper 3' brecciated; brecciated partings cemented with dark gray dolomitic limestone. No show.
2'0"	Limestone; dark gray, amorphous, dense. No show.
3'0"	Anhydrite; light to medium gray, fine crystalline, dense. No show.
2'0"	Limestone; dark gray, amorphous, very argillaceous. No show.
3'0"	Limestone; medium gray, microcrystalline, stylolitic, several short, irregular tight fractures. No show.
1'0"	Limestone; light gray, microcrystalline; dense matrix, entire unit broken when removed from core barrel. N.S.

Core No. 2 5609 - 5650, recovered 41'

9'0"	Limestone; light brown, gray, microcrystalline, dense, stylolitic. No show.
2'0"	Dolomite; light gray, microcrystalline, porous, looks wet. No show.
4'0"	Dolomite; light gray, microcrystalline; interlaminations and inclusions of white crystalline anhydrite. No show.
6'0"	Dolomite; light brown, amorphous, dense, very argillaceous in upper 4'; inclusion of anhydrite in lower 2'. No show.
6'0"	Anhydrite; medium gray, very fine crystalline, hard, dense. No show.
"A" Zone 7'0"	Limestone; dark brown, amorphous, numerous very short irregular fairly tight fracture in upper 5'. A few short fractures in lower 2'. Good oil stain, odor and spotty bright golden-yellow fluorescence on all fracture planes; matrix dense.
7'0"	Limestone; dark gray, amorphous, hard, occasional thin stylolite. No show.

Core No. 3 5760 - 5792, recovered 32'.

1'6"	Anhydrite; medium to dark gray, finely crystalline, hard, dense. No show.
2'6"	Limestone; medium brown, very finely crystalline, fair porosity, numerous, small brown calcite crystals, slight oil odor, fair oil stain, and spotty dull greenish-yellow fluorescence throughout unit; scattered short irregular fractures throughout with oil show on fracture planes similar to that in matrix.

2'0" Limestone; medium brown, very finely crystalline, several short, irregular fairly tight fractures throughout, fair oil stain and even bright green-yellow fluorescence on fracture planes; matrix dense.

3'0" Limestone; medium brown, very fine crystalline, good porosity, slight oil odor on fresh break, spotty dull greenish-yellow fluorescence throughout, numerous small brown calcite crystals.

8'0" Anhydrite; medium gray, hard, dense. No show.

15'0" Limestone; medium gray-brown, very finely crystalline, fair intercrystalline porosity throughout; some small vugular porosity in upper three feet; several two foot sections with numerous short fairly tight irregular fractures, slight oil odor on fresh break, dull spotty yellow fluorescence in matrix and on fracture planes; oil bleeding from upper 2'; lower 3' looks wet.

Core No. 4 5892 - 5944, recovered 54'.

8'0" Limestone; dark gray, micro-crystalline, slightly argillaceous; hard, dense. No show.

2'0" Anhydrite; grayish-brown, micro-crystalline, hard, dense. No show.

2'6" Dolomite; medium gray, amorphous, shaly near base. No show.

10'6" Limestone; medium gray, amorphous, dense, except for several long fairly tight fractures, through unit, fractures partially cemented with solenite. No show.

4'6" Limestone; medium gray, micro-crystalline, dense, except for single open fracture through unit, very pale spotty greenish-yellow fluorescence on fracture plane, otherwise no show.

11'0" Limestone; dark brown-gray, very fine crystalline, fair intercrystalline porosity, and slight permeability, good oil stain and odor and spotty pale green-yellow fluorescence throughout unit.

15'6" Limestone; medium gray, microcrystalline, dense, except for a single fairly tight fracture in upper 6' and a open fracture in lower 2'; very pale spotty yellow fluorescence on fracture planes, otherwise no show; several scattered stylolites. No show.

MUD SUMMARY

MUD ADDITIVES USED: Aquagel - 252 sacks; Barafos - 2 sacks; Baraco - 12 sacks; Baroid - 943 sacks; Caustic - 30 sacks; Driscose - 12 sacks; Hulls - 36 sacks; Defoamer - 1 sack; Smentox - 5 sacks; Soda Ash - 15 sacks; Tannex - 74 sacks;

MUD COST:	$5,416.94
DRAYAGE:	307.50
TOTAL MUD COST:	$5,724.44

Drilled surface hole to 1064' and ran 25 jts. (1041.58') of 9 5/8" casing set at 1054.58 and cemented with 400 sacks Regular Bulk Cement with 2 % ca cl2. Encountered no difficulty running 9 5/8" casing.

Drilled out from under surface pipe to approximately 4400 feet with water. At this point a caustic-tannex mud program was started and maintained to a total depth of 5976', Schlumberger measurement, with additions of caustic soda, tannex soda ash, driscose, and aquagel. Ran 194. jts, (5963.30') of 5 1/2" casing set at 5975' and cemented with 300 sacks pozmix with 2% gel. without difficulty. Four Cores and three Drill Stem Tests were run without difficulty.

Mud characteristics while drilling were as follows:

Depth	Weight	Viscosity	Water Loss	Pn
4994	10.5	45	15.0	10.5
5136	10.6	45	15.0	10.5
5303	10.4	49	13.0	10.5
5580	10.2	55	10.0	10.5
5650	10.5	52	10.0	11.0
5873	10.5	57	10.0	10.5
5937	10.6	50	10.5	11.0

DRILLING BIT AND TOTCO RECORDS

Bit No.	Make	Size	Type	Ser. No.	From	To	Totco Footage	Degree
1	Read	12 1/4	LT-3	Retip	0	1064	150	1/2
2	Reed	8 3/4	LT-3	Retip	1064	1921	750	2
3	Hughes	"	OSC3J	71290	1921	3463	1880	1 3/4
4	Hughes	"	OSC3J	77215	3463	3618	3406	1/4
5	Secure	"	MAN	73974	3618	3905	3905	1
6	Secure	"	MAN	73985	3905	4133	4100	1
7	Secure	"	MAN	74390	4133	4393	4393	3/4
8	Secure	"	MAN	74389	4393	4650	4768	1
9	Secure	"	MAN	74381	4650	4825		
10	Hughes	"	OWJ	16970	4825	4956	4956	1
11	Secure	"	MAN	74395	4956	5062	5050	1
12	Hughes	"	OWJ	17003	5062	5136		
13	Hughes	"	OWJ	17009	5136	5325		
14	Hughes	"	OWJ	16969	5325	5425		
15	Hughes	"	OWJ	16954	5425	5530		
16	Hughes	"	OWJ	6033	5530	5580		
17	Hughes	"	OWJ	5978	5580	5873		

CHRISTENSEN DIAMOND CORE BIT RECORD

Core No.	Bit No.	From	To	Footage
1	R-2716	5580	5609	29
2	R-2716	5609	5650	41
3	R-2716	5760	5792	32
4	R-2716	5892	5944	52

SAMPLE DESCRIPTIONS

200-2100	Shale, medium gray, silty Shale: medium grayis brown, tan oval specks, calcareous
2100-2360	Shale: medium gray silty Shale: dark gray, micaceous Some Shale dark brown tan specks, calcareous
2360-2400	Shale: light to medium-gray
2440	Sample Top Greenhorn
2440-80	Shale: dark brown, tan specks, calcareous Shale: medium to dark gray
2480-2600	Shale: medium to dary gray Some shale, dark brown as above
2600-2920	Shale, medium to dark gray, slightly micaceous
2920-3010	Shale as above Trace sandstone: light to medium gray, very fine grain, micaceous, pyritic, glauconitic
3010	Sample Top Muddy Sandstone
3010-3070	Sandstone: medium gray, very fine grain, glauconitic, micaceous, calcareous Shale: medium to dark gray Shale: light gray, micacecus, silty
3070-3250	Shale as above Some sandstone as above
3250	Sample Top Dakota
3250-3300	Trace sandstone: light gray, very fine grain, sub round, medium, cemented, slightly calcareous Shale, light gray Shale, medium gray
3300-3540	Trace sandstone as above Shale, medium to dark gray Siltstone, medium brownish-gray, micaceous, calcareous
3540-60	Siltstone and shale as above Some sandstone: light grayish-green, very fine grain, very glauconitic
3560-3640	Siltstone and shale as above Trace light gray sandstone increasing at 3600

3640-3680	Sandstone: as above Shale: medium to dark gray
3680	Sample Top Swift
3680-3870	Shale: dark gray, brown, micaceous Siltstone: medium brown, micaceous Trace gray sandstone Trace ochre red shale Trace light gray, glauconitic sandstone
3870	As above Some sandstone: light gray, very fine grain, glauconitic calcareous
4030	Sample Top Rierdon
4030-4120	Trace sandstone: light gray, very fine grain Shale: medium to dark gray Shale: medium gray silty
4120-90	Some sandstone as above Shale: dark gray Shale: medium gray Shale: greenish-gray, calcareous
4190-4240	Trace light gray glauconitic sandstone Shale as above
4240-4300	Shales as above
4310-20	Shale: greenish-gray, calcareous Shale: dark gray Trace red shale Trace limestone: medium brown, micro-crystalline, dense
4320-4410	Shale: greenish-gray, calcareous Shale: dark brownish-gray, silty Trace Limestone: dark gray, amorphous, very argillaceous Shale: dark gray Trace sandstone: light gray, very fine grain, glauconitic
4410-26	Shale: dark gray Some Shale: greenish-gray as above Some limestone: dark grayish-brown, crypto crystalline, dense
4426	Sample Top Piper Shale
4426-97	Shale: brick red Shale: as above
4497	Sample Top Piper Limestone
4497-4574	Trace limestone: dark brown, amorphous, dense Shale: medium to dark gray Shale: medium greenish-gray Trace red shale Trace sandstone: light brownish gray, very fine grain,

slightly porous, calcareous in lower 30'

4574 Sample Top Gypsum Springs

4574-4610 Shale: light greenish-gray, calcareous
Shale: medium to dark gray
Trace purple shale
Some red shale
Trace limestone: buff, amorphous

4610-40 Shales as above
Shale: brown, micaceous, silty

4640-60 Some dolomite: buff, amorphous, limy, dense
Limestone: dark brown, crypto-crystalline dense
Shale: dark gray
Shale: red
Shale: greenish-gray

4660-70 Limestone and shales as above

4670-4710 Shales as above

4710-20 Shales as above
Some Limestone: light brown, amorphous, dense

4720 4720 Driller equals 4675 SLM

4675 Sample Top Spearfish

4675-4760 Shales as above
Trace red anhydritic siltstone
Trace limestone: buff to brown, amorphous, dense

4760-70 As above
Siltstone: gray, micaceous, sandy

4770-4819 Sandstone: red, very fine grain, anhydritic
Shale: grayish-green
Shale: dark gray

4819 Sample Top Amsden

4819-50 Dolomite: purple, micro-crystalline, dense
Limestone, buff, crypto-crystalline, dense
Shales gray, and grayish-green
Some green shale

4850-60 Shales as above
Shale: purplish-red
Limestone: light gray, crypto-crystalline, dense
Trace dolomite: light pinkish-gray, very fine crystalline, fine granular porosity
Limestone: light gray, crypto-crystalline, dense

4860-90	As above Some purple shale
4890-4950	Shales: ochre red, grayish-green, medium green, dark gray, Limestone: medium brown, crypto-crystalline, dense Limestone: buff, very fine crystalline, dense Trace purple shale
4950	Sample Top Heath
4950-90	Shale: black Shale: dark gray Shale: ochre red Some purple shale Limestone: buff, crypto-crystalline, dense
4990-5040	Shale: medium greenish-gray, slightly calcareous Trace dark gray shale Some ochre and purple shale as above Trace limestone as above sandstone: fine grain, sub-round, white to pin with ferriguneus stain, calcareous
5040-60	Shales as above Trace buff limestone
5060-5100	As above Sandstone: pink to dark red, very fine grain, tite, ferriguneous stain
5100-16	Shales as above
5116	Sample Top Otter
5116-26	Trace shale, vivid green Shale: ochre red, silty Shale: purple Shale: medium gray Shale: light grayish-green
5126-70	As above Some limestone: dolomitic, buff, amorphous
5170-5200	Shale, ochre red, purple, greenish gray, purple and black Simestone as above
5200-60	Limestone: dolomite, light brownish gray, amorphous, eerthy, dense Shales as above
5260	Sample Top Kibbey sandstone
5260-70	Trace sandstone: pink to red, very fine grain, silty, slightly calcareous

Shales, medium gray, red,

5270-5410 Sandstone: white to pink and red, fine grain, tite, slightly calcareous
Shales as above

5410 Sample Top Kibbey Ls

5410-30 Trace tan dense limestone
sandstone and shale as above

5430-40 Shales: black, red, and gray
Trace sandstone as above

5440-5516 Sandstone: red, very fine grain, tite, anhydritic
Shales, as above

5516 Sample Top Madison

5516-40 Some sandstone and shale as above
Anhydrite, white, amorphous, soft

5540-60 As above
Limestone: medium gray, micro-crystalline, dense

5560-70 Limestone: as above
Dolomite: grayish-brown, amorphous, dense
Anhydrite: white to brownish-gray, amorphous, dense
Siltstone, red, anhydritic
Shale, gray and black and red

5570-5650 No Samples

5650-80 Limestone: medium brown, very fine crystalline, slightly porous
Anhydrite: white to tan
Shale: black and red
Dolomite brownish-gray, micro-crystalline dense

5680-5730 Trace limestone: brown, pseudo oolitic
Some anhydrite, white
Shale, red, black and gray, green
Limestone: chocolate brown, amorphous

5730-60 Anhydrite, white, dense
Some dolomite as above
Shale as above

5760-90 No Samples

5790-5820 Shales red and black

Limestone: brown, micro to very fine crystalline, dense
Trace anhydrite

5820-40 Dolomite: tan, earthy
Dolomite: light gray, sandy, dense
Some limestone and shale as above

5840-50 Limestone: medium brown, very fine crystalline, dense
Shale: red
Dolomite: light gray, amorphous, sandy, dense
Trace anhydrite

5850-90 Dolomite, tan, amorphous dense
Shale, gray and red
Trace anhydrite

5890-5940 No Samples

5940-50 Shale dark gray
Limestone: brown, amorphous, dense

5950-70 No Samples

5970-75 Shale, dark gray and red
Limestone: dark brown, amorphous, dense

Total Depth 5975 Driller equals 5976 Schlumberger

Location: C SW SW Sec. 24-T28N-R51E
Spacing - 160 acres
Elevation: 2186' K.B. - 2174 Gr.
Spudded: 5-16-54
Completed: 10-28-54
T.D.: 5976' Schl = 5975' Drlr
Prod. Zones: Temporarily abandoned

Schlumberger Tops			
Judith River	840	+1345	
Greenhorn	2436	- 250	
Muddy Sd	3018	- 832	
Dakota Silt	3238	-1052	
Piper Ls	4447	-2261	
Amsden	4811	-2625	
Heath	**4935	-2749	
Otter	5113	-2927	
Kibbey Sd	**5258	-3072	
Kibbey Ls	5414	-3228	
Madison	5508	-3322	
A-1	**5601	-3415	2'
A-2	**5617	-3431	4'
A-3	5626	-3440	9'
A-4	5635	-3449	25'
B-1	*5760	-3574	8'
B-2	5777	-3591	15'
B-3	5800	-3614	5'
B-4	**5832	-3646	4'
B-5	5866	-3680	?
C-1	*5904	-3718	?
C-2	*5921	-3735	10'

**Probable prod. zones from DST structrual position, etc.
*Shows
Drill Pipe Corrections (Made)
4720 Driller = 4675 SLM (-45')

Coring Intervals:
#1 5580-5609 Rec. 29' A-1
#2 5609-5650 Rec. 41' A-2-3-4
#3 5774-5792 Rec. 32' B-2
#4 5892-5944 Rec. 54' C-1 & 2

Drill Stem Tests:
DST #1 5609-50 A-2-3-4 1/2" choke. Opn 4 hrs, Opnd w/good blow decrsg to medium blow after 2 hrs. Rec. 2640' gas, 1306' cln oil, 30' salty o & g cut mud, 70' s.w. IBHFP 65#, FBHFP 425, BHSIP (20 min) 2882 Hydro 3563.
DST #2 5774-92 B-2 1/2" cke. Opn 4 hrs w/v.wk blow incrsg sli after 30 min. Rec. 229' s.w. w/tr free oil on top. IBHFP 0 FBHFP 1028 20 min BHSIP 2676 Hydro 3200.
DST #3 5757-73 B-1 Opn 4 hrs. Opnd w/wk blo incrsg sli after 1 hr. Rec. 310' fluid with tr of free oil on top 30' o & g cut mud, 280' muddy s.w. IBHFP 0 FBHFP 135 BHSIP 20 min 2286, Hydro 3200.

History Subsequent to Completion:
None

WORKOVER HISTORY NO. 1

July 29, 1957

Lease and Well No. East Poplar Unit Well No. 44
Field East Poplar County Roosevelt State Montana
Well Location C SW SW Section 24, T28N, R51E

Status Prior to Present Job:

Date Completed Temporarily abondoned October 28, 1954
Date of Last Workover None
TD - 5976 Schlumberger - 5975 Driller
PBTD 5689 ft.
Producing Zone - None

Justification For Workover:

Oil stains and shows were found in the samples of the Heath Sandstone and Kibbey Sandstone. The "A" Zone perforations will be block squeezed and the Heath and Kibbey Sandstone perforated and tested.

Summary of Workover:

(See Attached Sheets)

1. Final Perforations - 4994-5001 ft. (Heath Sandstone)
2. Final Plug Back Depth - 5023 ft.
3. Initial Potential - None, Temporarily abandonded 7-27-57.
4. Down Hole Equipment - Left 1 jt. 2 3/8" tubing with collar up stuck in Halliburton Model "C" Production Packer. Top of packer at 4986 ft. Tail pipe to 4993 ft.

SUMMARY OF WORKOVER

5-31-57: PBTD 5689'. Hauled mud from E.P.U. Well No. 95 and moved in mud pump.

6-1-57: PBTD 5689'. Conditioned mud to 10.4# per gallon, viscosity 44. Killed "A" Zone.

6-2-57: PBTD 5689'. Moving in rig.

6-3-57: PBTD 5689'. Rigging up.

6-4-57: PBTD 5728'. Pulled tubing, picked up bit and scraper, tripped and circulated out. Ran Baker junk basket with 2 B gauge ring on swab line. Would not go past 3700'.

6-5-57: PBTD 5726'. Made run with Baker junk basket with 2 A gauge ring on swab line. Basket went to bottom OK. Made 38 runs with junk basket with 2 B gauge ring to clean junk from hole.

6-6-57: PBTD 5728'. Ran Halliburton Model "DC" cement retainer on tubing and set at 5626'. Tested casing with 2500#. Spotted 27 bbls. water down tubing. Broke formation with 1900# at 2½ BPM. Squeezed "A" Zone perforation 5633'-5638' with 75 sacks 1.1 Pozmix cement. Formation squeezed at 4400# with 40 sacks. Reversed out 35 sacks. Job complete at 12:10 PM, 6-6-57. Pulled out of hole.

6-7-57: PBTD 5612.5'. Ran Lane Wells radioactive logs from 5612.5' back to 3000' and from 1200' to 700'. Tested squeeze on "A" Zone with 2500# for 30 minutes, held OK. Perforated Kibbey Sandstone at 5291' with Lane Wells block squeeze gun, 8 jet holes. Ran Baker junk basket, set Baker Model "K" Cement retainer at 5288.5'

6-8-57: PBTD 5612.5'. Ran tubing. Spotted 25 bbls. water down tubing to displace mud. Formation began feeding at 2000#. Injected 1 barrel water at ½ BPM with 3200#. Swabbed tubing dry. Began swabbing formation fluid at 2 BFPH (salt water with rainbow of dark brown oil). Swabbed well 6 hours after load water removed. No change in formation fluid. Block squeezed Kibbey Sandstone through perforation at 5291' with 50 sacks Pozmix cement. Pressure increased gradually to 4500# with 30 sacks out and held. Increased pressure to 4800#, held OK. Reversed out 20 sacks cement. Reversed out total hole volume to condition mud. Job complete at 3:30 PM, 6-8-57. Pulled out of hole. Dropped bridging ball.

6-9-57: PBTD 5288.5'. Perforated Kibbey Sandstone 5282'-5287' with Lane Wells Karat-Free casing jet, 4 holes per foot, 20 holes. Ran Baker junk basket on wire line. Ran Baker full bore Model "B" retreivable packer and set at 5273'. Swabbed tubing dry. Waited 30 minutes, no fluid rise. Waited 1 hour, recovered ¼ bbl., no formation fluid. Waited 1 hour, recovered ½ bbl. of formation fluid (muddy, slightly salty water with show of brown oil). Shut well in overnight.

6-10-57: PBTD 5288.5'. Fluid level rose to 2700' after well shut in overnight (17 hours). Fluid was approximately ½ barrel oil, remainder salt water. Swabbed dry in 1 hour, fluid rise of 50' to 100' each 2 hours in 2" tubing. Kept swabbed dry while waiting on acid. Treated

SUMMARY OF WORKOVER (Continued)

Kibbey Sandstone with 500 gallons of Halliburton MCA. Tested lines to 4000#, pressure up to 3500#. No formation bleed. Pressured up to 4000#, very slight bleed down. Pressure up to 4000#, let bleed down to 3000#. Continued procedure for 1½ hours. Increased pressure to 4400#. Formation broke down at 4400# to 3200# with injection rate of 3/4 BPM. Injected 6 bbls. bled down to 2400#, released pressure, bled back 3/4 barrels, injected 2 barrels more at 3/4 BPM, 3000# (8 barrels in formation). Bled down to 2400#-bled back 1 barrel. Injected 1 more barrel at 3/4 BPM, 2900# (9 barrels in formation). Bled down to 2300#. Bled back 1¼ barrels. Injected 1 more barrel at 3/4 BPM, 2800# (10 barrels in formation). Bled down to 2300#. Injected 2 more barrels (12 barrels in formation) at 1 BPM, 2900#. Bled down 2100#. Released pressure. Began swabbing to pit. Swabbed load water and spent MCA with trace of oil. Swabbed dry on 5th run. Shut in overnight (11 hours). Fluid level rose to 2500'. Fluid 100% salt water.

6-11-57: PBTD 5240'. Swabbed well 2 hours after swabbed dry. Tubing filled up approximately 200' each hour. Fluid 100% salt water with rainbow of oil. Pumped into formation with 2600# at 1 BPM. Reset Baker full bore packer at 5240'. Squeezed off Kibbey Sandstone through perforations 5282'-5287' with 50 sacks Pozmix. Well squeezed at 4500# with 35 sacks in formation. Left 5 sacks in casing above perforation and reversed out 10 sacks. Checked squeeze after 3 hours with 2500#, held OK. Perforated Heath Sand with Lane Wells block squeeze gun, 8 jets, 4 holes at 5026', 4 at 5027'. Set Baker Model "K" cement retainer at 5023.5' to block squeeze Heath Sandstone.

6-12-57: PBTD 5023.5'. Went in hole with tubing and swabbed load mud. Well swabbed approximately 30 BFPH, 95% water with fluid level at 2500'. No change in fluid in 6 hours swabbing. Squeezed lower Heath section through perforation 5026'-5027' with 75 sacks Pozmix. Formation squeezed with 60 sacks out at 4500#. Attempted for 1 hour to get formation to hold pressure at 4500#. (Very slow bleed down indication of small leak in tbg.) Reversed out 15 sacks. Pulled out of hole.

6-13-57: PBTD 5023.5'. Pressure tested squeeze with 2500# for 20 min., held OK. Perforated above Heath Sand for block squeeze at 5001'. Ran Baker junk basket. Went in hole with Baker full bore packer, set packer at 5010', pressured up to 4000# for 15 minutes to test tubing and squeeze, held OK. Reset packer at 4998'. Broke formation with 3400#. Injected 1 BPM at 2600#, bled down to 1600#. Swabbed tubing to bottom with 4 runs. Made 2 trips which recovered gas and approximately 1 barrel of oil-cut mud. Began making 1 run per hour. No fluid obtained. Shut in overnight. No fillup overnight. Recovered approximately ½ barrel of mud and a little gas after shut in 13 hours.

6-14-57: PBTD 5023'. No fluid rise after shut in overnight. Pulled out of hole. Perforated Heath Sand 4994'-5000' with Lane Wells Karrat-Free casing jet gun, 4 holes per foot. Made run with Baker junk basket. Reran Baker full bore packer and set at 4988'. Swabbed well dry. Shut in overnight.

SUMMARY OF WORKOVER (Continued)

6-15-57: PBTD 5023'. No fluid rise after shut in overnight (12 hours). Acidized Heath Sandstone through perforation 4994'-5001' with 500 gallons Dowell mud acid. Filled tubing with 12 barrels acid followed by 7.5 barrels displaced water. Tubing dry. Pressured up to 1200#, bled down to 1000#. Injected 3 barrels at ½ BPM with 1400#, bled back 1 barrel. Injected 3 barrels at 3 BPM, 2400#. Bled back 2 barrels. Injected 8 barrels at 3 BPM, 2200#, bleed down 1800#. Opened well to pit. Flowed back approximately 4 barrels and died. Began swabbing. Swabbed dry in 4 runs after recovering spent acid. Let stand 1 hour. Recovered no fluid. Let stand 2 hours, recovered no fluid. Filled hole, released packer, perforated Heath Sand 5016'-5021' with Wireline 1-3/4" through tubing jet, 4 holes per foot. Reset packer at 5008'. Swabbed tubing dry in 4 hours. Last run had indication of formation fluid at end of run (gas-cut mud). Waited 30 minutes, made dry run. Shut in overnight.

6-16-57: PBTD 5023'. After shut in 13 hours, fluid level rose to 2000', approximately 12 bbl fillup which was approximately 50% oil, and the remainder was water and mud. Swabbed dry with 2 runs. Made dry run after 30 minutes. Moved off rig temporarily.

6-17-57: PBTD 5023'. Waiting on pulling unit, too wet to move.

6-18-57: PBTD 5023'. Repairing pulling unit.

6-19-57: PBTD 5023'. Rigged up pulling unit. Well filled to top. Swabbed well dry with 3 runs. Recovered 14 barrels of oil, 6 barrels of water. 20 barrels fluid fillup, 70% oil. Made dry run after 1 hour. Shut in overnight. Filled up 2000' in 12 hours, 65% oil. 5 barrels oil, 3 barrels water. Oil gravity 38.6 at 60 degrees F.

6-20-57: PBTD 5023'. Waiting on pulling unit. Down for repairs.

6-21-57: PBTD 5023'. Swabbed tubing dry with 3 runs. Fillup after shut in 24 hours, 3000'. Recovered 12 barrels fluid, 67% oil. 8 barrels of oil and 4 barrels of water. Waited 1 hour, recovered approximately ½ barrel of fluid, 60% oil. Waited 30 minutes, no fluid recovery. Circ. out mud with salt water. Acidized well with 500 gallons Dowell mud acid with Free Flow Emulsion Breaker added. Injected 2 bbls in 1 hour by soaking acid in at 2500 lbs. Formation began taking fluid slower. Increased pump pressure to 3000#, then 3400# and zones communicated. Perforation 5016'-5021' communicated with perforations 4994'-5001'. Injected remaining 10 bbls. acid at rate of 2.5 BPM at 2300#. Reset packer from 5008' to 4988'. Swabbed spent acid with good show of oil on 3rd run. Swabbed dry on 4th run. Waited 30 minutes, no fluid rise. Waited 1 hour, no fluid rise. Shut in overnight. Fluid rise after shut in 12 hours, 2500'. Recovered 10 bbls fluid, 30% oil. Swabbed dry.

6-22-57: PBTD 5023'. After swabbing dry, moved rig off. To temporarily drop from report.

SUMMARY OF WORKOVER Continued

7-3-57: 5023' PBTD - Moved pulling unit back in. Started swabbing. Packer gave way.

7-4-57: 5023' PBTD - tripping for new packer.

7-5-57: 5023' PBTD - Set top of Halliburton Model "C" production packer at 4986' with tail pipe to 4993'. Packer has 15,000# pull latch-on. Swabbed tubing dry. Recovered approximately 3 barrels oil, 17 barrels water.

7-6-57: 5023' PBTD - After shut in overnight (12 hours) fluid rose to 2000' (3000' fillup - 12 barrels). Fluid 50% oil, 50% salt water. Swabbed dry, very slight fluid movement. Moved off pulling unit.

7-7-57: 5023' PBTD - Will open in test tank today to attempt to flow.

7-8-57: 5023' PBTD - Flowing stram the size of a pencil, clean oil.

7-9-57: 5023' PBTD - flowing small stram of clean oil, not enough to gauge, tank leaking.

7-10-57: 5023' PBTD - flowing small stram of oil.

7-11-57: 5023' PBTD - waiting on pulling unit to sand frac.

7-12-57: 5023' PBTD - waiting on pulling unit to sand frac.

7-13-57: 5023' PBTD - Moved pulling unit, rigged up and swabbed dry. Recovered 500' oil and 4500' salt water.

7-14-57: 5023' PBTD - Sand fraced Heath Sand through perforation 4994'-5001' and 5016'-5021'. Tested packer and casing lines with 2500 psi. Tested tubing lined with 6000 psi. Broke formation with 3900 psi and injected at rate of 4.2 BPM, 4250 psi. Injected 1750 gallons with 1/3# sand/gallon at 4250 psi (580# sand), 3000 gallons with 1/2# sand/gallon at 4300 psi (1500# sand), 1550 gallons with 1# sand/gallon at 4350 psi (1550# sand), 1870 gallons with 1 1/4# sand/gallon at 4500 psi (2340# sand), 1500 gallons with 1 1/2# sand/gallon at 4600 psi (2250# sand). Sanded up with 6960# sand in formation. Maximum pressure 7000#, average injection rate - 4.2 BPM. Total sand mixed 8220#. Reversed out 1260#, stung into packer. Cleared perforation with 1 barrel. Bleed down pressure 1150 psi. After shut in 19 hours, pressure 450 psi. Flowed off head and died in 15 minutes. Started swabbing.

7-15-57: 5023' PBTD - Swabbed 9 hours. 1st hour--24.30; 2nd hour--10.80. Last 7 hours, rate 2.70 BFPH, 35% water (42 BOPD, 23 BWPD). Total fluid recovered after frac job--59 barrels, 177 barrels frac oil unrecovered. Left open overnight, 14 hours. Tubing filled, did not flow.

7-16-57: 5023' PBTD - After shut in over night, tubing filled, swabbed dry and continued swabbing for 3 hours. Recovered 30 barrels fluid, 50% oil. 162 barrels frac oil unrecovered. Could not pull out of Halliburton production packer. Ran rods with 2" x $1\frac{1}{2}$ x 16' D&B insert barrel with page anchor. Spaced at 4930'.

SUMMARY OF WORKOVER Continued

7-17-57: 5023' PBTD - Setting portable pumping unit.

7-18-57: 5023' PBTD - Will start testing today.

7-19-57: 5023' PBTD - On 18 hour test, pumped at rate of 61 BFPD, 30% water (43 BOPD, 18 BWPD). 119 barrels of frac oil unrecovered.

7-20-57: 5023' PBTD - On 24 hour test, pumped at rate of 43 BFPD, 38% water (27 BOPD, 16 BWPD). 92 barrels frac oil unrecovered.

7-21-57: 5023' PBTD - On 24 hour test, pumped at rate of 38 BFPD, 63% water (14 BOPD, 24 BWPD). 78 barrels frac oil unrecovered.

7-22-57: 5023' PBTD - On a 24 hour test, pumped 35 BFPD, 56% water (15 BOPD, 20 BWPD). 63 barrels frac oil unrecovered.

7-23-57: 5023' PBTD - On 24 hour test, pumped at rate of 27 BFPD, 84% water (4 BOPD, 23 BWPD). 59 barrels frac oil unrecovered.

7-24-57: 5023' PBTD - On 20 hour test, pumped at rate of 27 BFPD, 70% water (8 BOPD, 19 BWPD). 51 barrels of frac oil unrecovered.

7-25-57: 5023' PBTD - On 24 hour test, pumped at rate of 29 BFPD, 76% water (7 BOPD, 22 BWPD). 41 barrels of fracture oil unrecovered.

7-26-57: 5023' PBTD - Pulled rods and pump. Attempted to pull tubing loose from packer. Pulled 50,000# on indicator. Tubing appeared to be pulling loose. Checked indicator. Indicator not working properly. Ran Homco rattle shot in packer at 4986' with 55,000# pull, did not free tubing. Attempted to find free point. Tubing tongs broke down.

7-27-57: 5023' PBTD - Found free point at 4982' - 4' above packer. Ran Homco string shot and backed off tubing at 4955'. Left 1 jt. 2 3/8" tubing with coller up, stuck in Halliburton Model "G" Production packer with 15,000# pull friction ring hold down. Top of packer at 4986', Tail pipe to 4993' Well closed in with Camaron 600 series spool with 1 opening bull plugged, 1 with 2000#. W.P., 2" casing valve, 1 - 2" upset master valve. All valves bull plugged. To drop from report. Temporarily abandoned 7-27-57.

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FILE #44

DOWELL INCORPORATED

STAGE NO.

TREATMENT NO.

TREATMENT REPORT

DISTRICT #15 STATION Williston, N. Dak DATE 6-14, 1954

OWNER Murphy Corp. LEASE E.P.C. WELL NO. 44
POOL East Poplar COUNTY Roosevelt STATE Montana
LOCATION Sec 24-28-51E OWNER'S REPRESENTATIVE Harold Milam

WELL DATA

FORMATION Charles "C" Zone
PAY-FROM 5922 TO 5927
PRESENT TOTAL DEPTH 5937 P. B. FROM 5926

PIPE DATA—
CASING SIZE 5½" WT. 15.5#
CASING DEPTH 5934 SKS. CEMENT 300
LINER SIZE ← WT. ←
LINER DEPTH-FROM ← TO ←
LINER DESCRIPTION ←
TUBING SIZE 2" EUE DEPTH
PACKER-TYPE ← DEPTH ←
PACKER FURNISHED BY OPERATOR ____ DOWELL ____

COMPLETION DATA—
DATE New CABLE TOOL
ROTARY 4⅝" DRILLING FLUID Mud
SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5922	5927

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING. SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME (A.M. OR P.M.)	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
6:00	0	0					ARRIVAL AT LOCATION WITH 10000 GALS. OF DOWELL JEL X 100
8:02	500	500					Start 2366/ Acid down Tubing — FILL — BBLS.
8:13	700	500					Acid spotted on formation — BLEED 22 BBLS.
							FLUSH 22 BBLS.
8:25	700	500	22	—	—	—	Start Acid in formation
8:26	1000	1400	22.5	.5	.5	.5	Pressure Backed To 700#
8:27	1000	700	24.0	1.0	.5	.5	
8:28							Start 2366/ Water Flush
29		1000	27	4.0	3	3.0	Increase Pump Rate
30		1000	30	7.0	3	3.0	
31		1000	33	10.0	3	3.0	Pumping Steady
32		1000	36	13.0	3	3.0	
33		1000	39	16.0	3	3.0	
34		1100	42	19.0	3	3.0	
35		1100	45	22.0	3	3.0	
36		1100	47	24.0	2	2.0	All Acid displaced
8:40		500					Bled down pressure
							LEFT LOCATION

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

B. Owen
SERVICE ENGINEER

DISTRICT OFFICE COPY.

STATION OR DISTRICT MANAGER

PRINTED IN U. S. A.
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STAGE NO.

DOWELL INCORPORATED

TREATMENT NO.

TREATMENT REPORT

DISTRICT #15 STATION Williston N.D. DATE 6-22, 195-Y

OWNER Murphy Corp. LEASE E.P.H. WELL NO. 44
POOL East Poplar COUNTY Roosevelt STATE Montana
LOCATION Sec 24-28-51 OWNER'S REPRESENTATIVE Jim Kuanett

WELL DATA

FORMATION Charles "C" Zone
PAY-FROM 5922 TO 5928
PRESENT TOTAL DEPTH 5927 P. B. FROM 5926

PIPE DATA—
CASING SIZE 5½" WT. 15½#
CASING DEPTH 5925 SKS. CEMENT 300
LINER SIZE WT.
LINER DEPTH-FROM TO
LINER DESCRIPTION
TUBING SIZE 2" E.U.E. DEPTH 5917
PACKER-TYPE DEPTH
PACKER FURNISHED BY OPERATOR DOWELL

COMPLETION DATA—
DATE CABLE TOOL
ROTARY DRILLING FLUID
SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4 Jets	5922	5928
4 Bullets	5922	5928

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING. SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
12:30 MST							ARRIVAL AT LOCATION WITH 500 GALS. OF DOWELL XFW
1:02							START FILLING HOLE WITH WATER — FILL 110 BBLS.
1:55							HOLE FULL — BLEED 23 BBLS.
2:00	500	1000					START BLEEDING 1265# Acid — FLUSH 42 BBLS.
2:06	500	800					START 1166# WATER TO SPOT Acid
2:09	500	700					Acid SPOTTED ON FORMATION
2:10	1000	500	23	0	—	—	START Acid IN FORMATION
13	2000	2100					SHUT DOWN LET SOAK
2:57	2800	2900					RESUME PUMPING
58	2000	2000	24.5	1.5	1.5	NEG	SHUT DOWN.
4:00	2500	2500					RESUME PUMPING
4:03	2200	2250	26	3.0	1.0	.5	PRESSURE DROPPING
05	2025	2100	27	4.0	1.0	.5	
07	1850	2000	28	6.0	1.0	.5	
08	1750	1900	29	7.0	1.0	1.0	
09	1600	1750	30	7.0	1.0	1.0	
11	1475	1550	31	8.0	1.0	.5	
15	1250	1375	33	10	2.0	.5	
17	1200	1325	34	11	1.0	.5	
19	1150	1200	35	12	1.0	.5	ALL Acid DISPLACED SHUT DOWN
4:25		1000					BLED DOWN PRESSURE
6:00 CST							LEFT LOCATION — TRUCKS

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

Owen + Mettle
SERVICE ENGINEER

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File #424

STAGE NO.

DOWELL INCORPORATED

TREATMENT REPORT

TREATMENT NO.

DISTRICT Dawson STATION Williston DATE 6-24, 1954

OWNER Murphy Corporation LEASE EPU WELL NO. #34

POOL EPU COUNTY Roosevelt STATE Montana

LOCATION OWNER'S REPRESENTATIVE James Curnutt

WELL DATA

FORMATION "C"

PAY-FROM 5905 TO 5910

PRESENT TOTAL DEPTH 5910 P. B. FROM 5964

PIPE DATA—

CASING SIZE 5 1/2 WT. 15.5#

CASING DEPTH 5974 SKS. CEMENT 300

LINER SIZE NONE WT.

LINER DEPTH-FROM TO

LINER DESCRIPTION

TUBING SIZE 2" EUE DEPTH 5903

PACKER-TYPE NONE DEPTH

PACKER FURNISHED BY OPERATOR DOWELL

COMPLETION DATA—

DATE New CABLE TOOL

ROTARY yes DRILLING FLUID mud

SIZE OPEN HOLE 8 3/4"

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5905	5910

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT	50 BPD	—	—

ACIDIZING, SHOOTING AND LOGGING RECORD—

Lane Wells log & Perforated

DETAILED RECORD OF TREATMENT

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
6:30							ARRIVAL AT LOCATION WITH 1000 GALS. OF DOWELL Del X 100
8:35							Start Circulating well with water — FILL — BBLS.
9:45							Well Circulated — BLEED 23 BBLS.
10:10							Start Del X 100 down tubing — FLUSH 23 BBLS.
10:25			23	0	23	1.53	Acid on bottom
10:26			24	1	1	1.0	200 in 7 Start water flush
10:26							Pressure to 3400 - 50 to 500#
							Put in 9' tubing sub.
12:55							Resume flush
	2800	2600					50 to 500#
	3000	2800					Pressure reading
1:07	2300	2200					Pressure break
1:13		2100	1 water	2	2	—	pressure reading
1:22	2000	200	23 water	20	20	2.9	Flush complete

LEFT LOCATION 2 pm

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

Dept. to
Used For
AFE No.
Service Rec'd
Dist. Approval

J A McClure
SERVICE ENGINEER

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STATION OR DISTRICT MANAGER

STAGE NO.

DOWELL INCORPORATED

TREATMENT REPORT

TREATMENT NO. 15-5-12

DISTRICT 15 DENVER STATION WILLISTON DATE 6-25, 1954

OWNER MURRAY CORPORATION LEASE EPU WELL NO. #44

POOL EPU COUNTY ROOSEVELT STATE MONTANA

LOCATION 24-28N-51E OWNER'S REPRESENTATIVE JAMES CURNUTT

WELL DATA

FORMATION "C"

PAY-FROM 5905 TO 5910

PRESENT TOTAL DEPTH 5910 P. B. FROM 5964

PIPE DATA—

CASING SIZE ~~XE~~ 5½" WT. 15.5#

CASING DEPTH 5974 SKS. CEMENT 300

LINER SIZE None~~XX~~ WT.

LINER DEPTH-FROM TO

LINER DESCRIPTION

TUBING SIZE 2" EUE DEPTH 5903

PACKER-TYPE None DEPTH

PACKER FURNISHED BY OPERATOR DOWELL

COMPLETION DATA—

DATE NEW CABLE TOOL

ROTARY YES DRILLING FLUID MUD

SIZE OPEN HOLE 8 3/4"

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5905	5910

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT	50 BPD		

ACIDIZING, SHOOTING AND LOGGING RECORD—

LANE WELLS LOG AND PERFORATED

DETAILED RECORD OF TREATMENT

TIME A.M. ~~XXXX~~	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
6 30							ARRIVAL AT LOCATION WITH 1000 GALS. OF DOWELL Jel X100
							FILL BBLS.
8 35							Start circulation, w/water — BLEED 23 BBLS.
9 45							Well circulated — FLUSH 23 BBLS.
10 10							Start Jel X100 down tubing
10 25			23		23	1.53	Acid on bottom
10 26			24	1	1	1.0	Acid in, start water flush
10 26							Pressure to 3100 - SD to soak, put in 8' tubing sub
12 55							Resume flush
	2800	2600					S. D. to soak
	3000	2800					Press. reading
1 07	2300	2200					" break
1 15		2100	1 water	3	2		" reading
1 22	2000	200	23 water	20	20	2.9	Flush complete
2 PM							LEFT LOCATION

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

J. A. McClure
SERVICE ENGINEER

E. H. Nielsen
STATION OR DISTRICT MANAGER

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Dale #44

STAGE NO.

DOWELL INCORPORATED

TREATMENT REPORT

TREATMENT NO. 15-5-14

DISTRICT #15 DENVER STATION WILLISTON, N. D. DATE 6-26, 19

OWNER MURPHY CORP. LEASE E.P.U. WELL NO. 44

POOL EAST POPLAR COUNTY ROOSEVELT STATE MONT.

LOCATION 24-28-51 OWNER'S REPRESENTATIVE JIM CURNUTT

WELL DATA

FORMATION Madison ~~MADISON~~ "C" ZONE

PAY-FROM 5905 TO 5910

PRESENT TOTAL DEPTH 5910 P. B. FROM 5926

PIPE DATA—

CASING SIZE 5½" WT. 15½#

CASING DEPTH 5975 SKS. CEMENT 300

LINER SIZE WT.

LINER DEPTH-FROM TO

LINER DESCRIPTION

TUBING SIZE 2" Eue DEPTH 5909

PACKER-TYPE X DEPTH X

PACKER FURNISHED BY OPERATOR X DOWELL

COMPLETION DATA—

DATE CABLE TOOL

ROTARY DRILLING FLUID

SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5905	5910

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME A.M. P.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
							1000 Jel X500
12 00							ARRIVAL AT LOCATION WITH 2000 GALS. OF DOWELL Jel X 100
12 35							Start water to circulate well — FILL 20 BBLS.
12 40							Well circulated — BLEED 23 BBLS.
12 45							Start bleeding, 23 bbl. Jel X500 to form. — FLUSH 23 BBLS.
12 54							Jel spotted on form.
12 56	1000	1500	23		23	2.5	Start jel in form.
12 57	2400	2000	24	1	1.0	1.0	1 bbl. jel in form.
12 59							Start 48 bbl. acid
1 02	2800	2400	37	14	13	4.3	Increase pump rate
1 05	"	"	50	27	13	4.3	
1 08	2400	2200	63	40	13	4.3	Press. breaking
1 10	2200	2100	72	49	9	4.5	All acid pumped
1 11							Start 23 bbl. water flush
1 13	1900	1900	80	57	8	4.0	
1 15	1700	1700	88	65	8	4.0	Press. breaking
1 17	1600	1600	95	72	7	3.5	All acid displaced, shut down
1 20	500	500					Bleed down pressure
2 00							LEFT LOCATION TRUCKS

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

RECEIVED JUL 1954

B. OWEN
SERVICE ENGINEER

E. H. NIELSEN
STATION OR DISTRICT MANAGER

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STAGE NO.

DOWELL INCORPORATED

TREATMENT No.

TREATMENT REPORT

DISTRICT #15 STATION Williston, N. Dak DATE 7-14, 1954

OWNER Murphy Corp LEASE Eby WELL NO. 44
POOL East Poplar COUNTY Roosevelt STATE Montana
LOCATION Sec 24-28N-51E OWNER'S REPRESENTATIVE Jim Cranmer

WELL DATA

FORMATION
PAY-FROM 5779 TO 5784
PRESENT TOTAL DEPTH P. B. FROM

PIPE DATA—
CASING SIZE 5½" WT. 15½#
CASING DEPTH 5970 SKS. CEMENT 200
LINER SIZE ✓ WT. ✓
LINER DEPTH-FROM ✓ TO ✓
LINER DESCRIPTION ✓
TUBING SIZE 2" EUE DEPTH 5787
PACKER-TYPE ✓ DEPTH ✓
PACKER FURNISHED BY OPERATOR DOWELL

COMPLETION DATA—
DATE CABLE TOOL
ROTARY DRILLING FLUID
SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5779	5784

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
6:00 AM ST							ARRIVAL AT LOCATION WITH 1000 GALS. OF DOWELL JE/X100
2:15							Start bleeding 22.5 bbl Acid To formation — FILL — BBLS.
2:23	800	400					Acid spotted. — BLEED 22.5 BBLS.
							FLUSH 22.5 BBLS.
2:25	800	400	22.5	0	22.5	2.5	START Acid in formation
2:28	3150	2700	24	1.5	1.5	.5	Shutdown To catch flush
8:10	2500	2100					START 22.5 bbl water flush
11	3500	3000					Shutdown, Let soak
13	2100	2600					Resume Pumping
14	3200	2750	2.5	2.5	1.0	.2	Feeding pressure
16	3400	3000	26	2.5	1.0	.5	
17	3300	2800	26.5	4.0	.5	.5	Pressure Decrease
18	3000	2600	27.5	5.0	1.0	1.0	Pressure Break
20	2700	3000	30.5	8	2.0	1.5	Increase pump rate
24	3300	3000	37.0	14.5	6.5	1.6	Pumping steady.
28	3300	3000	43.5	21.0	6.5	1.6	
30	3300	3000	46.5	24	3.0	1.5	All acid displaced, Shutdown
8:23		2250					Bleed down pressure
							LEFT LOCATION

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

R. Owen
SERVICE ENGINEER

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File #44

STAGE NO.

DOWELL INCORPORATED

TREATMENT REPORT

TREATMENT NO.

DISTRICT 15 STATION WILLISTON, N.D. DATE 7-16, 1954

OWNER MURPHY CORP. LEASE E.P.U. WELL NO. 44

POOL E. POPLAR COUNTY ROOSEVELT STATE MONTANA

LOCATION OWNER'S REPRESENTATIVE

WELL DATA

FORMATION B-1

PAY-FROM 5760 TO 5765

PRESENT TOTAL DEPTH 5770 P. B. FROM 5976

PIPE DATA—

CASING SIZE 5 1/2 OD WT. 15.5 #

CASING DEPTH 5975 SKS. CEMENT 300

LINER SIZE — WT. —

LINER DEPTH-FROM — TO —

LINER DESCRIPTION —

TUBING SIZE 2" EUE DEPTH 5762

PACKER-TYPE 2 I.W. DEPTH 5745

PACKER FURNISHED BY OPERATOR — DOWELL

COMPLETION DATA—

DATE 6-54 CABLE TOOL

ROTARY — DRILLING FLUID MUD

SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
55	5760	5765

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME A.M. OR (P.M.)	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
4:00	0	0					ARRIVAL AT LOCATION WITH 1000 GALS. OF DOWELL JEL-X 100
6:20	400	400					START BLEEDING MUD TO BOTTOM
6:31	400	0					ACID ON BOTTOM - SHUT IN CASING
6:37	200	0	22	0	22		START DISPLACING ACID
6:38	3500	3000	22.5	.5	.5	.5	S.D. LET ACID SOAK
6:40	3300	2700	—	—	—	—	RESUME PUMPING
6:41	3500	3000	—	—	—	—	S.D.
6:50	3500	3000	—	—	—	—	MAINTAIN PRESS. AT 3000#
7:10	3500	3000	—	—	—	—	S.D. RELEASE PRESS. TO 2000#
7:12	3700	3700	—	1.0	—	—	BUILD PRESS. TO 3200#
8:25	3900	3000	24	2.	—	—	START WATER FLUSH
8:27	3900	3500	—	—	—	—	BUILD PRESS. TO 3600#
9:35	3900	3500	—	6.	—	—	FORMATION FEEDING AT 3600#
9:57	3600	3100	—	11	5	.25	PRESS. DROP
10:10	3600	3100	—	22	11	.9	FLUSH COMPLETE

FILL — BBLS.
BLEED 22 BBLS.
FLUSH 22 BBLS.

LEFT LOCATION

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

R. L. METTLE
SERVICE ENGINEER

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File

STAGE NO.

TREATMENT NO.

DOWELL INCORPORATED

TREATMENT REPORT

DISTRICT #15 STATION Williston, N.D. DATE 7-18, 1954

OWNER Murphy Corp LEASE E.P.R. WELL NO. 44
POOL East Poplar COUNTY Roosevelt STATE Montana
LOCATION SEC OWNER'S REPRESENTATIVE Slim Guanett

WELL DATA

FORMATION R-1 Zone
PAY-FROM 5760 TO
PRESENT TOTAL DEPTH 5770 P. B. FROM 5976

PIPE DATA—
CASING SIZE 5½" WT. 15.5#
CASING DEPTH 5975 SKS. CEMENT 200
LINER SIZE — WT. —
LINER DEPTH-FROM — TO —
LINER DESCRIPTION —
TUBING SIZE 2" EUE DEPTH 5762
PACKER-TYPE — DEPTH —
PACKER FURNISHED BY OPERATOR — DOWELL —

COMPLETION DATA—
DATE — CABLE TOOL —
ROTARY — DRILLING FLUID —
SIZE OPEN HOLE —

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5760	5765

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME A.M. or P.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
							1000 Jel x 500
1:00	MST						ARRIVAL AT LOCATION WITH 2000 GALS. OF DOWELL Jel x 100
1:35							START FILLING HOLE — FILL 25 BBLS.
1:45							WELL FILLED WITH WATER — BLEED 22 BBLS.
1:46							START BLEEDING 2266l Jel TO FORMATION — FLUSH 22 BBLS.
1:56	1000	600					Jel SPOTTED ON FORMATION
1:58			22	0	—	—	START Jel IN FORMATION
1:59	2500	2100	24	2	2	2.0	266l Jel IN FORMATION
2:00	3000	2600					START 4866l Acid IN FORMATION
2:03	3600	2100	38	16	14	4.7	
2:06	3500	2100	52	30	14	4.7	
2:09	3500	2100	66	44	14	4.7	
2:11	3500	2100	72	50	6	2.0	ALL ACID PUMPED
2:12	3500	2100					START 2266l WATER FLUSH
2:19			94	72	22	3.1	ALL Jel + ACID DISPLACED
2:25		2000					BLEED DOWN PRESSURE
							LEFT LOCATION

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

Dwe + Mo Chance
SERVICE ENGINEER

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Field #44

STAGE NO. _____

DOWELL INCORPORATED

TREATMENT NO. _____

TREATMENT REPORT

DISTRICT #15 Denver STATION Williston DATE 7-21, 1954

OWNER Murphy Corp LEASE EPU WELL NO. 44

POOL _____ COUNTY _____ STATE _____

LOCATION _____ OWNER'S REPRESENTATIVE _____

WELL DATA

FORMATION A

PAY-FROM 5635 TO 5640

PRESENT TOTAL DEPTH 5788 P. B. FROM _____

PIPE DATA—

CASING SIZE 5½ WT. 17

CASING DEPTH _____ SKS. CEMENT _____

LINER SIZE _____ WT. _____

LINER DEPTH-FROM _____ TO _____

LINER DESCRIPTION _____

TUBING SIZE _____ DEPTH _____

PACKER-TYPE _____ DEPTH _____

PACKER FURNISHED BY OPERATOR _____ DOWELL _____

COMPLETION DATA New

DATE _____ CABLE TOOL _____

ROTARY _____ DRILLING FLUID _____

SIZE OPEN HOLE _____

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4/1=F	5635	5640

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
12:45							ARRIVAL AT LOCATION WITH 200 GALS. OF DOWELL Etching Acid.
2:10							St. Water To Fill. FILL 121 BBLS.
4:35							Hole Full - St. 200 gal. Etching Acid & Water To Spot BLEED 22 BBLS.
							FLUSH 5 BBLS.
4:58	300	600					Acid On Bottom - Close Csg -
5:02	2400	2700		3/4	3/4		
5:06	2500	2800					
5:11	2700	3000					
5:19	3100	3000		1 1/4	1		
5:36	2000	2000					Bleed Acid by -
5:39	3000	3000		2 1/4	3/4		
6:00	3200	3200					
6:25	2900	2900					
6:45	3300	3200					
7:10	3400	3400					
7:15	3000	3000		2 3/4	1/4		
7:21	3500	3500		4	1 1/4		
7:35	3400	3400					
8:05	3400	3400		5	1		Flush Complete
							No Break in Treatment
							Could not Pump Steady
9:00 PM							LEFT LOCATION

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

R. C. Abercrombie
SERVICE ENGINEER

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STATION OR DISTRICT MANAGER

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DOWELL INCORPORATED

STAGE NO. _____

TREATMENT NO. _____

TREATMENT REPORT

DISTRICT #15 Denver STATION Williston DATE 7-22-, 1954

OWNER Murphy Corporation LEASE E.P.U. WELL NO. 44

POOL _____ COUNTY _____ STATE _____

LOCATION _____ OWNER'S REPRESENTATIVE Mr. James-

WELL DATA

FORMATION A

PAY-FROM _____ TO _____

PRESENT TOTAL DEPTH _____ P. B. FROM _____

PIPE DATA—

CASING SIZE _____ WT. _____

CASING DEPTH _____ SKS. CEMENT _____

LINER SIZE _____ WT. _____

LINER DEPTH-FROM _____ TO _____

LINER DESCRIPTION _____

TUBING SIZE _____ DEPTH _____

PACKER-TYPE _____ DEPTH _____

PACKER FURNISHED BY OPERATOR _____ DOWELL _____

COMPLETION DATA—

DATE _____ CABLE TOOL _____

ROTARY _____ DRILLING FLUID _____

SIZE OPEN HOLE _____

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
4:00 AM							ARRIVAL AT LOCATION WITH 375 GALS. OF DOWELL Etching Acid
7:03							Hole Full water - St. 375 gal Etching Acid — FILL 121 BBLS.
							BLEED 22 BBLS.
							FLUSH 9 BBLS.
7:12	200	500	9				Acid in Tubing - St. 13 bbl water Tag
7:23	200	500					Acid on buttons - Start Displacement
7:25	2000	2200					MAX. Press. - Stop Pump
7:26	1700	1800	9000				Start Pump
7:28	1500	1600		3	3		Stop Pump -
7:29	1400	1200					Start Pump.
7:30	900	1000		3½	½		Stop Displacement - Job Complete
							Cut Flush - 5½ bbl. Short.
							Displaced 3½ bbl - (147 gal.)

LEFT LOCATION _____

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

R. C. Abercrombie
SERVICE ENGINEER

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FILE #44

STAGE NO.

DOWELL INCORPORATED

TREATMENT REPORT

TREATMENT NO.

DISTRICT 15 STATION WILLISTON DATE 7-27, 1954

OWNER MURPHY CORPORATION LEASE E.P.U. WELL NO. 44
POOL EAST POPLAR COUNTY ROOSEVELT STATE MONTANA
LOCATION 24-28N-51E OWNER'S REPRESENTATIVE

WELL DATA

FORMATION A
PAY-FROM 5633 TO 5638
PRESENT TOTAL DEPTH 5738 P. B. FROM 5716

PIPE DATA—
CASING SIZE 5½" OD WT. 15.5#
CASING DEPTH 5975 SKS. CEMENT 300
LINER SIZE — WT. —
LINER DEPTH-FROM — TO —
LINER DESCRIPTION —
TUBING SIZE 2" EUE DEPTH 5655
PACKER-TYPE NONE DEPTH
PACKER FURNISHED BY OPERATOR DOWELL

COMPLETION DATA—
DATE 6-54 CABLE TOOL
ROTARY — DRILLING FLUID MUD
SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5633	5638

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
5:00	0	0					ARRIVAL AT LOCATION WITH 1000 GALS. OF DOWELL
7:10	200	400					START BLEEDING ACID TO BOTTOM
7:21	300	300					START WATER
7:27	400	200					ACID ON BOTTOM
7:30	200	0	12	0	—	—	START DISPLACING ACID
7:34	3500	3200	—	1	1	.25	S.D. LET ACID SOAK
7:47	2500	200	—	—	—	—	BLEED PRESS. DOWN TO 2000
7:50	3500	3200	—	—	—	—	BUILD PRESS. TO 3200#
7:53	3500	3200	—	2	1	—	S.D. LET ACID SOAK.
8:17	3500	3200	—	—	—	—	BUILD PRESS. TO 3200#
8:20	3000	2500	—	—	—	—	BREAK 3200 TO 2500#
8:22	3000	2600	—	3.5	—	—	S.D.
8:24	1800	1300	—	—	—	—	STANDING PRESS.

FILL — BBLS.
BLEED 22.5 BBLS.
FLUSH 22.5 BBLS.

LEFT LOCATION

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

RICHARD L. METTLE
SERVICE ENGINEER

STATION COPY.

STATION OR DISTRICT MANAGER

Field #44

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103 3-25 12500 5-54

STAGE NO.

DOWELL INCORPORATED

TREATMENT NO.

TREATMENT REPORT

DISTRICT Mls STATION Williston, N. Dak. DATE 10-22, 1954

OWNER Murphy Corp. LEASE E. P. Q. WELL NO. 44
POOL East Poplar COUNTY Roosevelt STATE Montana
LOCATION Sec 24-28-57E OWNER'S REPRESENTATIVE Virgil Gagne

WELL DATA

FORMATION "A" Zone
PAY-FROM 5633 TO 5638
PRESENT TOTAL DEPTH 5718 P. B. FROM

PIPE DATA—
CASING SIZE 5-1/2" WT. 15.5#
CASING DEPTH SKS. CEMENT
LINER SIZE WT.
LINER DEPTH-FROM TO
LINER DESCRIPTION
TUBING SIZE 2" EUE DEPTH 5635
PACKER-TYPE — DEPTH —
PACKER FURNISHED BY OPERATOR DOWELL

COMPLETION DATA—
DATE CABLE TOOL
ROTARY DRILLING FLUID
SIZE OPEN HOLE

PERFORATING DATA OR PAY ZONES

SHOTS/FT.	FROM	TO
4	5633	5638

PRODUCTION—

	OIL	WATER	G. O. R.
INITIAL			
PRESENT			

ACIDIZING, SHOOTING AND LOGGING RECORD—

DETAILED RECORD OF TREATMENT

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	BBLS. OF ACID OUT OF TANKS	BBLS. OF ACID IN FORMATION	BBLS. OF ACID PER READING	BBLS. OF ACID PER MINUTE	REMARKS
7:00							ARRIVAL AT LOCATION WITH 500 GALS. OF DOWELL Jel 100
8:15	0	0					START circulating well with oil — FILL 120 BBLS.
10:15	200	200					well circulated — BLEED 2 BBLS.
10:30	200	200					START 1126 gals Acid down Tubing — FLUSH 12 BBLS.
10:36	400	100					START 1066 gals Oil Top of Acid
10:44	600	200	32	0	2.2	1.8	Acid spotted
10:45	600	200					START Acid in formation
10:46	1100	600	29	2	2	2.0	SHUTDOWN Tree Leaking
10:55	1100	900					RESUME Pumping
56	2200	2150	25.5	3.5	1.5	1.5	Formation Feeding
10:57	2200	2150	27.0	5.0	1.5	1.5	
58	2200	2200	28.5	6.5	1.5	1.5	Max. Pressure
10:59	2200	2200	30.0	8.0	1.5	1.5	Pumping Steady
11:00	2200	2200	31.5	9.5	1.5	1.5	
11:01	2200	2200	33.0	11.0	1.5	1.5	
11:02	2200	2200	34	12.0	1.0	1.0	All Acid displaced. SHUT DOWN
11:10	800	800					Bleed down pressure
							LEFT LOCATION

IF TREATMENT IS NOT CONVENTIONAL LIMESTONE FORMATION TREATMENT TO INCREASE OIL OR GAS PRODUCTION, STATE PURPOSE OF TREATMENT.

B. Dunn
SERVICE ENGINEER

STATION COPY.

STATION OR DISTRICT MANAGER

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OWL-103

Well #44

DOWELL INCORPORATED

TREATMENT NO.

TREATMENT REPORT Acidizing SERVICE

DISTRICT #6 STATION Glendive 02 DATE 6-15, 1957

OWNER Murphy Corporation LEASE E. PQ WELL NO. 44
POOL East Poplar COUNTY Roosevelt STATE Montana
LOCATION Sec 24-28-51E OWNER'S REPRESENTATIVE Bill Hamilton

FORMATION Heath Sand
PAY FROM 4994 TO 5001
PRESENT TOTAL DEPTH 5023 P. B. FROM 5974
DATE WELL COMPLETED Old SIZE O. H.
PERFORATING DATA OR PAY ZONES:

SHOTS/FOOT	FROM	TO
4	4994	5001

CASING SIZE 5½" WEIGHT 15½#
CASING DEPTH 5974 SACKS CEMENT 200
LINER: FROM TO SIZE WT.
TUBING SIZE 2" EUE 8rd DEPTH 4991 PERF.
PACKER: TYPE Baker DEPTH 4991
TUBING: VOLUME 16.2 ALLOWABLE PRESSURE 5000#
CASING: VOLUME — ALLOWABLE PRESSURE
PRODUCTION: INITIAL PRESENT
ACID, SHOOTING & FRACTURING RECORD

TREATING MATERIALS:
TYPE: Mud Acid AMOUNT: 500 gallons

TREATING EQUIPMENT:
PUMPING EQUIPMENT TD Pump
MIXING OR BLENDING
FLUSH TANKS
OTHER

TIME (A.M. OR P.M.)	PRESSURE: CASING	PRESSURE: TUBING	BARRELS OF FLUID: OUT OF TANKS	BARRELS OF FLUID: IN FORMATION	BARRELS OF FLUID: PER READING	BARRELS OF FLUID: PER MINUTE	REMARKS
5:30							ARRIVED AT LOCATION
6:30							Test Lines To 5500#
6:45							Start 12 bbls Acid down Tubing
6:50							Start 7.5 bbls water
7:04	0	1400					15 bbls pumped Hit Pressure
7:05	0	1400	19.5	.5	.5	.5	Acid on formation
							Pump 3 bbls. 5 BPM shut down
7:11	0	1500	22.5	3.5	3.0	.5	Let soak
7:25			21.5	2.5	—	—	Bleed back 1 bbl.
7:26		0					Resume Pumping
7:27	0	2400	24.5	5.5	3.0	3.0	Shut down Let soak
7:40			22.5	3.5	—	—	Bleed back 2 bbls
7:44	0	0					Resume Pumping
7:45	0	2200	24.5	5.5	2.0	2.0	
7:46	0	2200	27.5	8	3.0	3.0	
7:47	0	2200	30.5	11.5	3.0	3.0	11 bbls Acid displaced, shut down 1 bbl short. Operators instruction
7:48	0	1800					Bled down

TOTAL BBLS. PUMPED: FILL & BREAKDOWN — TREATING FLUID 12 FLUSH 18.5
AVERAGE RATE: TREATING FLUID Min Rate .5 BPM FLUSH Max. Rate 3.0 BPM
TREATING PRESSURE: MAXIMUM 2400 MINIMUM 1400

SERVICE ENGINEER B. Owen STATION MANAGER

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DWL-103

DOWELL INCORPORATED

TREATMENT NO.

TREATMENT REPORT Acidizing SERVICE

DISTRICT #15 STATION Glendive Or DATE 6-21, 1957

OWNER Murphy Corp LEASE EPH WELL NO. #4

POOL East Poplar COUNTY Roosevelt STATE Montana

LOCATION Sec 24-28-51E OWNER'S REPRESENTATIVE Helton & Danes

FORMATION Heath Sand CASING SIZE 5½" WEIGHT 10.5#

PAY FROM 5017 TO 5022 CASING DEPTH 5924 SACKS CEMENT 250

PRESENT TOTAL DEPTH 5922 P. B. FROM 5875 LINER: FROM TO SIZE WT.

DATE WELL COMPLETED Old SIZE O. H. TUBING SIZE 2" EUE DEPTH 5010 PERF.

PERFORATING DATA OR PAY ZONES:

PACKER: TYPE Baker DEPTH 5010

SHOTS/FOOT	FROM	TO
4	5017	5022

TUBING: VOLUME 19.5 ALLOWABLE PRESSURE 3500

CASING: VOLUME ALLOWABLE PRESSURE

PRODUCTION: INITIAL PRESENT

ACID, SHOOTING & FRACTURING RECORD

TREATING MATERIALS:

TYPE	AMOUNT
mud Acid	500 gallons

TREATING EQUIPMENT:

PUMPING EQUIPMENT TU Pump

MIXING OR BLENDING

FLUSH TANKS

OTHER

TIME A.M. OR P.M.	PRESSURE CASING	PRESSURE TUBING	BARRELS OF FLUID OUT OF TANKS	BARRELS OF FLUID IN FORMATION	BARRELS OF FLUID PER READING	BARRELS OF FLUID PER MINUTE	REMARKS
8:30							ARRIVED AT LOCATION Swabbing
1:15 PM							Fill Tubing To Unseat Packer
1:30							Unseat Packer & start circulating well
2:25							well circulated with salt water. Set Packer & Swab Tubing dry
3:40							Start 12 bbls Acid down Tubing
							Start 7.5 bbls water.
3:58							19 bbls pumped Hi Pressure
4:17	0	2600	19.5	.5	.6	Acc.	Start Acid in formation
4:33	0	2500	20.5	1.5	1.0	-	
		3400					
4:55	1200	2000	21.5	2.5	1.0	-	26 bbls pumped. Zones communicating
4:57	1500	2000	22.5	4.5	2.0	1.0	
4:58	1500	2300	26	7.0	2.5	2.5	
4:59	1500	2300	28.5	9.5	2.5	2.5	
5:00	1500	2350	30.5	11.5	2.0	2.0	11 bbls Acid displaced. Shut down

TOTAL BBLS. PUMPED: FILL & BREAKDOWN TREATING FLUID 12 FLUSH 19.5

AVERAGE RATE: TREATING FLUID FLUSH

TREATING PRESSURE: MAXIMUM 3400 MINIMUM 2000

SERVICE ENGINEER B. Owen STATION MANAGER

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File #44

LANE-WELLS Company

PERFORATION LOG

Company Murphy Corporation
Well & No. East Poplar Unit #14
Location Roosevelt County
Depth 5910 Method Tubing
Date Perforated 6-25-53
Sales Order 72825
Casing Record 5 1/2 17#

Holes 20 Size 26A
Runs ONE
Truck & Operator 362 Johnson
Remarks Perforated At The Following Depths As Directed By Mr Curnutt

FORM O-190 15M 1-53 PRINTED IN U.S.A.

5890
5900
5905
5910
5910
5920

Hard Perf
20 Holes

FILE #44
EPI #44

LANE-WELLS Company

PERFORATION LOG

Company Murphy Corporation
Well & No. East Poplar Unit #44
Location Roosevelt County
Depth 5964 Method Tubing
Date Perforated 6-12-54
Sales Order 73168
Casing Record 5 1/2" 17#

Holes 20 Size 26 B
Runs one
Truck & Operator 421 Johnson
Remarks C.T.D 5964
L.W.T.D 5964 1/2
Perforated as Directed
By Mr. Milam

FORM O-190 15M 1-53 PRINTED IN U.S.A.

5930
5940
5945
5950
5950
5960
5970

Hone Perf
20 Holes

FILE #44

LANE-WELLS Company

PERFORATION LOG

Company Murphy Corporation
Well & No. East Poplar Unit #41
Location Roosevelt County
Depth 5928½ Method Tubing
Date Perforated 6-21-54
Sales Order 72822
Casing Record 5½ 17#

FORM O-190 15M 1-53 PRINTED IN U.S.A.

Holes 56 Size 28-15/32; 28-[illegible]
Runs Three
Truck & Operator 362 [illegible]
Remarks Perf as Directed By Mr [illegible]

5910

5920

5921

56 Holes

28 Holes Hone
28 [illegible] Bullets

5928

5930

File

LANE-WELLS Company

PERFORATION LOG

Company MURPHY Corp.
Well & No. E. P. U. #44
Location Sec. Roosevelt Co.
Depth 5910 Method P.B.
Date Perforated 7-12-54
Sales Order 75730
Casing Record 5½" ~~17#~~ 15.5

Holes 26 Size 15/32
Runs 2- Baker Tools 1- 4" x 24"
Truck & Operator 362 - Wells
Remarks Intro 10' ABOVE CASING HEAD

All Work done by Co. Hds

FORM O-190 15M 1-53 M PRINTED IN U.S.A.

5770

5780

5777
26 Holes
5784

5790

5800

5890

5890 TOP BAKER PLUG

5900

5910

5910 Co. T.D.
5913 L.W.

File #44

B-130

LANE-WELLS Company

PERFORATION LOG

Company Murphy Corporation
Well & No. East Poplar Unit #44
Location Roosevelt County
Depth 5720 Method Tubing
Date Perforated 7-16-54
Sales Order 73721
Casing Record 5 1/2" 17 #

Holes 28 Size 15/32
Runs Two
Truck & Operator 480 Johnson
Remarks Perforated at the Following depths as Directed By Mr. Curnutt

FORM O-190 20M 1-52 PRINTED IN U.S.A.

5750

5760

5760
5765

A-2 Bullet
28 Holes

5770

File #44

LANE-WELLS Company

PERFORATION LOG

Company Murphy Corp.
Well & No. F.P.U. #44.
Location
Depth 5738 Method Plug Back
Date Perforated 7-20-54
Sales Order 14569
Casing Record 5½" 17#

Holes 20 Size 28A
Runs 1 - 4" K.S.
Truck & Operator 441 - Wells
Remarks Zero 5' Above Rotary Table

All work done by Colliers

FORM O-190 20M 1-52 PRINTED IN U.S.A.

5630

5635

20 Holes K.S.

5640

5640

File #44

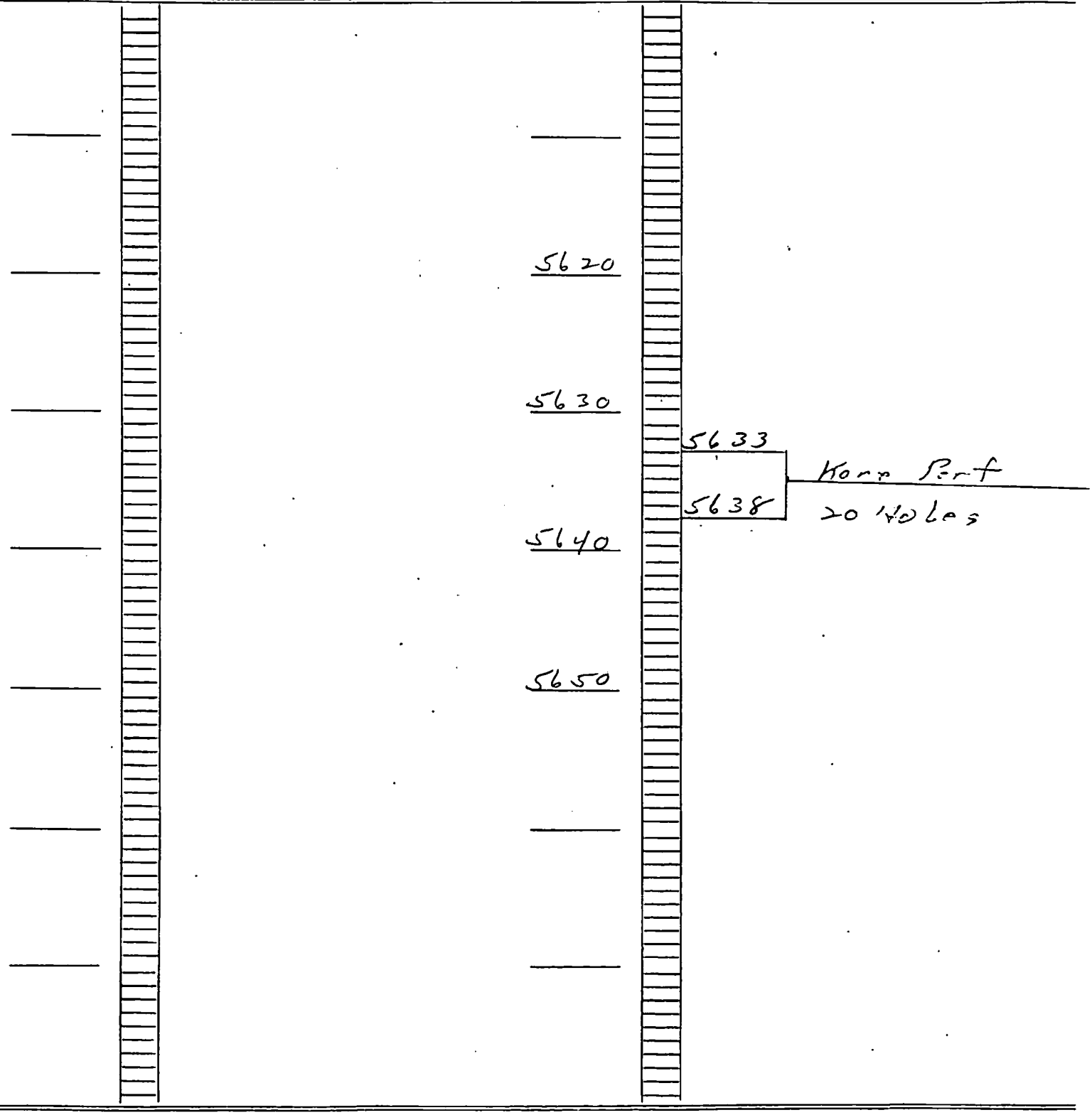
LANE-WELLS Company

PERFORATION LOG

Company Murphy Corporation
Well & No. East Poplar Unit #44
Location Roosevelt County
Depth ____ Method ____
Date Perforated 7-26-54
Sales Order 23726
Casing Record 5 1/2 17#

Holes 20 Size 26#
Runs ONE
Truck & Operator 450 JOHNSON
Remarks Perforated at the Following depths as Directed By Mr Greene

FORM C-190 20M 1-52 PRINTED IN U.S.A.



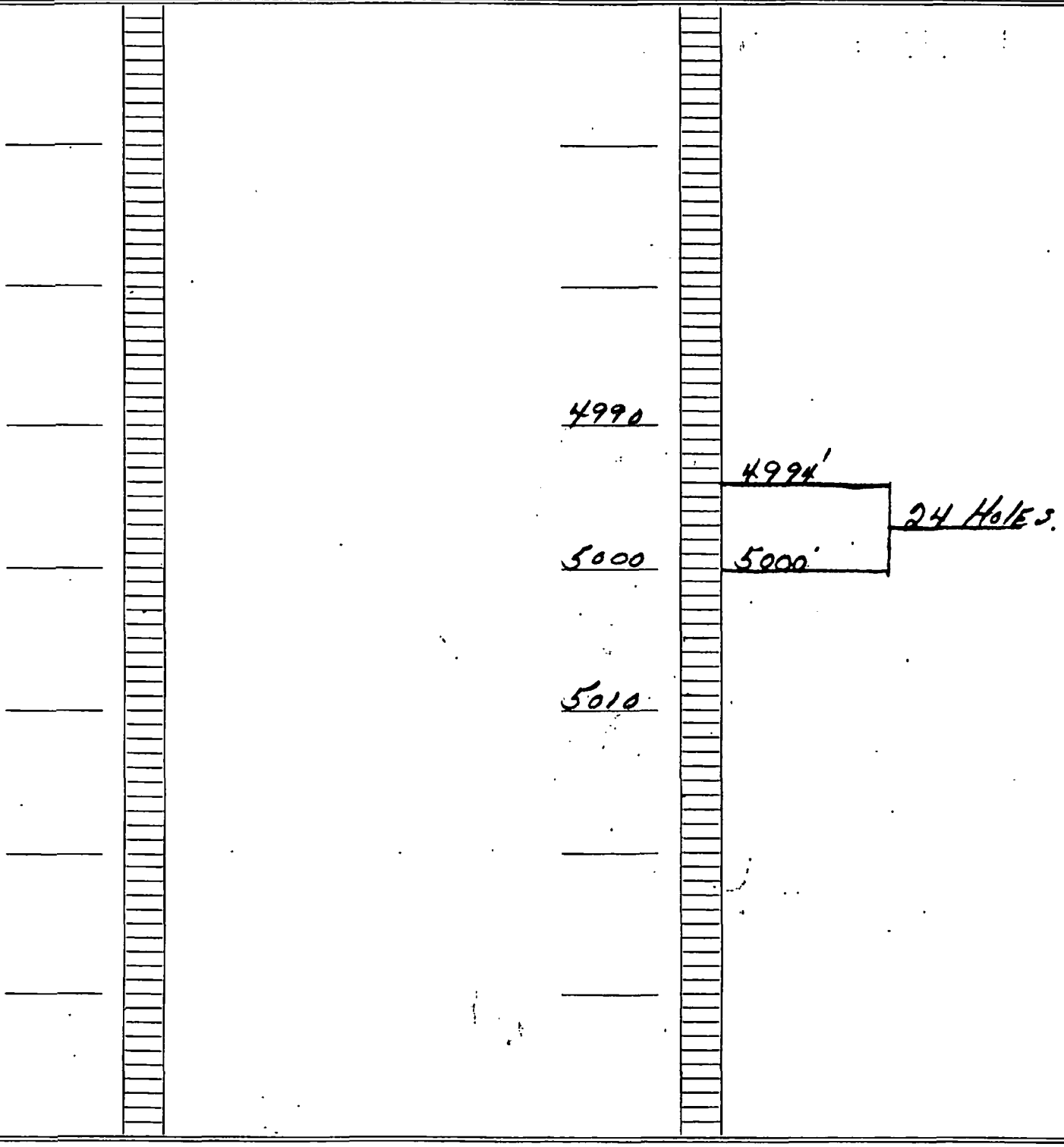
LANE-WELLS Company

PERFORATION LOG

Company Murphy Corp
Well & No. E.P.U. # 44
Location EAST Poplar
Depth 5023 Method WIRE LINE
Date Perforated 6/14/57
Sales Order 4650
Casing Record 5½"

Holes 24 Size
Runs 1
Truck & Operator 650 HALVORSON
Remarks

FORM HO-190 32M 12-54 PRINTED IN U.S.A.



WIRELINE, INC.

PERFORATION LOG

Company Murphy Corp
Well & No. E.P.W. # 44
Location
Depth 5022 Method Casing
Date Perforated 6-15-57
Sales Order 114
Casing Record 5½" 15.50#

Holes 21 Size 1¾ Thru-Tubing
Runs 1
Truck & Operator H-1 Chilton
Remarks Perforated Thru-Tubing

5000

5010

5020

21 holes from 5016' To 5021'
4 holes per ft.

LANE-WELLS Company

PERFORATION LOG

Company Murphy Corp
Well & No. EPU # 44
Location East Poplar.
Depth 5022' Method Tubing
Date Perforated 6/13/57
Sales Order 4649
Casing Record 5½"

Holes 4 Size
Runs 1
Truck & Operator 650 Halvorson
Remarks

FORM HO-100 32M 12-54 PRINTED IN U.S.A.

5000	5001 4 Holes 4 way squeeze.	
5010		
5020		

PRODUCTION &
INJECTION DATA

27

57 → 8

TO PLUG AND ABANDON

E.P.U. No. 44 was completed as a dry hole and temporarily abandoned on October 28, 1954. A subsequent completion attempt was made in June and July of 1957 and being unsuccessful was temporarily abandoned again on July 27, 1957. In all, the following intervals have been tested and found to be incapable of oil or gas production in commercial quantities:

"C"	5945'-5950'	"B"	5779'-5784'	"A"	5635'-5640'	"Kibbey	5291'-
"C"	5922'-5927'	"B"	5760'-5765'	"A"	5633'-5638'	"Kibbey"	5282'-5287'
"C"	5921'-5928'					"Heath"	5026' & 5027'
"C"	5905'-5910'					"Heath"	5016'-5021'
						"Heath"	4994'-5001'

Height of cement in hole between 5-1/2" casing and 8-3/4" hole --- 1,307'. Top of cement at 4669'. Will plug 5-1/2" casing with 50 sacks of cement set on top of joint of 2" tubing stuck in Model "C" production packer at 4986', leaving 412' of cement plug. Top of plug at 4574'. (Plugged interval 4986'-4574'.)

Will attempt to cut off and pull as much of remaining 4574' of 5-1/2" casing as possible, setting a 25 sack plug at the bottom of 9-5/8" surface casing 1054' to 991' (63' plug) and a 10 sack plug at the top of well (25' plug) with a 3" steel post marker cemented in and capped in accordance with the Montana State Oil & Gas Commission Regulations and the United States Geological Survey Regulations.

RECORD OF PLUGGING AND ABANDONMENT

DATE July 27, 1960

Lease and Well No. East Poplar Unit No. 44

Field: East Poplar County: Roosevelt State: Montana

Well Location: C SW SW Section 24, T28N, R51E

Status Prior to Abandonment:

Date Completed: October 28, 1954 (TA) Date of Last Workover: July 27, 1957

T.D.: 5976' PBTD 5023' Producing Zone: None

Perforations:				
	"C"	5945'-5950'	"B"	5779'-5784'
	"C"	5922'-5927'	"B"	5760'-5765'
	"C"	5921'-5928'	"A"	5635'-5640'
	"C"	5905'-5910'	"A"	5633'-5638'
	Kibbey	5291'	Heath	5026'-5027'
	Kibbey	5282'-5287'	Heath	5016'-5021'
			Heath	4994'-5001'

Cumulative Production: None

Justification for Abandonment: E.P.U. No. 44 was completed as a dry hole and temporarily abandoned on October 28, 1954. A subsequent completion attempt was made in June and July of 1957 and being unsuccessful, was temporarily abandoned again on July 27, 1957. All of the above intervals were tested and found to be incapable of oil or gas production in commercial quantities.

Summary of Abandonment: May 20, 1958 - Conditioned mud, broke formation with 2200 psi. Set 50 sack cement plug in 5½" casing from 4986' to 4574'. Cut and pulled 3464' of 5½", 15.50#, J-55, R-2, ST&C Cond. 2 casing. Set 25 sack cement plug in bottom of 9 5/8" casing and set 10 sack cement plug in top of 9 5/8" casing. Cemented in a 4'x6' well marker in accordance with the regulations of the Montana Oil and Gas Conservation Commission.

Disposition of Salvable Material:

3464' of 5½", 15.50# casing recovered from well - transferred to stock

1 - 9 5/8" 00x10" Series 600 Type C-18 OCT casing head with 2-2" outside outlets, complete with OCT type T-160U Tubing Head Complete - transferred to EPU No. 105

1 - 10" Series 600 Larkin Type R Tubing Head - transferred to EPU No. 95

1 - 2" Cameron Lift Plug Valve - transferred to stock

1 - 2" Orbit Fig. 204, 4000# Test Flowline Valve - transferred to stock